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7-23 2013

Air/Toxics & Inspection Coordination Branch 6EN-A

EPA REGION 6 ENFORCEMENT DIVISION INSPECTION REPORT

FRS #:	**110000460901**			
Media #:	**48-201-00037**			
Permit #:	**O-3049**			
Inspection Type:	**Clean Air Act, Partial Compliance Evaluation**			
Inspection Date:	**4/22-24/13**			
Company Name:	**RHODIA INC.**			
Facility Name:	**RHODIA, HOUSTON PLANT**			
Physical Location:	**8615 Manchester Street**			
	Houston, Texas 77012			
Mailing Address:	**8615 Manchester Street**			
	Houston, Texas 777012			
County/Parish:	**Harris County**			
SIC Code:	**2819**			
NAICS Code:	**211112**			
Reg. Programs:	**RMP & 112(r)**			
Facility Representatives:	Floyd Dickerson		Environmental Manager	(713) 924-1408
	William McConnell		Plant Manager	(713) 924-1484
	Jim Cesen		Operations Manager	(713) 924-1433
EPA Inspectors:	Sherronda Martin-Phelps	6EN-AS	Environmental Engineer	(281) 983-2122
State Inspectors:	N/A			
EPA Lead Inspector Signature/Date:	Sherronda Martin-Phelps			7/16/13
	Sherronda Martin-Phelps, Environmental Engineer			Date
Peer Reviewer Signature/Date:	Carlos B Flores			7/23/13
	Carlos Flores, Life Scientist			Date
Supervisor Signature/Date:	Samuel Tates			7/23/2013
	Samuel Tates, Section Chief Air Surveillance			Date

Section I - INTRODUCTION

PURPOSE OF THE INSPECTION

One of the goals of the U.S. Environmental Protection Agency (EPA) is to protect the public and the environment from exposure to extremely hazardous chemicals. A Risk Management Plan (RMP) inspection was conducted at Rhodia-Houston Plant (Rhodia) from April 22-24, 2013 to achieve this goal. The objectives of this inspection included working with the facility (both management and employees) to improve their chemical safety management program and to determine their compliance with the Clean Air Act (CAA) Section 112(r) and 40 C.F.R. Part 68 – Chemical Accident Prevention Provisions. EPA Region 6 selected Rhodia for inspection due to the amount of flammable and toxic substances at the facility, the number of people residing within the worst case scenario endpoints, and the facility's accident history.

I arrived at Rhodia at 9:30 am on April 22, 2013. I met with Floyd Dickerson (Environmental Manager), William McConnel (Plant Manager), and Jim Cesen (Operations Manager). I presented my credentials to William McConnell, who is responsible for 40 C.F.R. Part 68 implementation and informed him that this was an EPA inspection to evaluate compliance with the CAA Section 112(r) and 40 C.F.R. Part 68. Rhodia does not have union representation onsite.

FACILITY DESCRIPTION

Rhodia is owned by its parent company, Rhodia Inc., which operates a sulfuric acid manufacturing plant in Houston, Harris County, Texas. Rhodia is a major producer of sulfuric acid with production estimates of about 2,600 tons per day. The production of sulfuric acid occurs by two processes: combusting elemental sulfur and regenerating spent sulfuric acid. Rhodia is also a producer of liquid sulfur dioxide and commercially incinerates liquid hazardous wastes. The Houston Plant currently operates under Air Operating Permit No. O-3049.

Section II - OBSERVATIONS

This inspection concentrated on the following units: Regeneration 2, Unit No. 8, and Logistics. General Process Overviews and the corresponding Process Flow Diagrams have been provided for each of these units (**Attachment 1**).

40 C.F.R. § 68.10 Applicability

As reported in their November 8, 2012 RMP submittal (**Attachment 2**), Rhodia is a stationary source that handles or stores more than a threshold quantity of the following regulated substances: oleum, sulfur trioxide, carbon disulfide, vinyl acetate, toluene di-isocynate, propionitrile, acrylonitrile, methyl mercaptan, ethyl mercaptan, acetaldehyde, allyl alcohol, propylene oxide, hydrazine, hydrogen sulfide, isopropylamine, 1-butene, propylene, cis butene-2, trans butene-2, isobutylene, 1,3 butadiene, isopentane, ethyl chloride, dimethylamine, ethylamine, methylamine, trimethylamine, and propane in a process. Therefore, 40 C.F.R. Part 68 – Chemical Accident Prevention Provisions are applicable to Rhodia.

40 C.F.R. § 68.12 General Requirements

Rhodia has submitted a single RMP that reflects five (5) covered processes, which are subject to the Program 3 Prevention Program requirements. For these processes, Rhodia is required to do the following: develop and implement a management system, conduct a hazard assessment, implement the prevention requirements of 40 C.F.R. § 68.65 through § 68.87, develop and implement an emergency response program, and submit the data elements required by 40 C.F.R. § 68.175 in their RMP (**Attachment 2**).

40 C.F.R. § 68.15 Management

As required by 40 C.F.R. § 68.15(c), "when responsibility for implementing individual requirements of this part is assigned to persons other than the person identified under paragraph (b) of this section, the names or positions of these people shall be documented and the lines of authority defined through an organization chart or similar document." See **Attachment 3** for a copy of this information.

Subpart B - Hazard Assessment

Rhodia operates five (5) processes that meet the criteria of Program 3 Prevention Program. At this program level, certain Offsite Consequence Analyses are to be conducted. Rhodia uses several regulated flammable and toxic substances. For these substances, one (1) worst-case scenario and at least one (1) alternative scenario should be analyzed and reported in their RMP for both flammable and toxic substances. This information was provided by the facility in the RMP (**Attachment 2**).

Subpart D - Program 3 Prevention Program

40 C.F.R. § 68.65 Process Safety Information

I reviewed documentation of this information at Rhodia.

40 C.F.R. § 68.67 Process Hazard Analysis

I requested the corresponding Process Hazard Analyses (PHAs) for the following units: Regeneration 2, Unit No. 8, and Logistics. Rhodia revalidated all the PHAs for the units in question within at least five (5) years, as required by the RMP.

40 C.F.R. § 68.69 Operating Procedures

According to 40 C.F.R. § 68.69(c), "The operating procedures shall be reviewed as often as necessary to assure that they reflect current operating practice, including changes that result from

changes in process chemicals, technology, and equipment, and changes to stationary sources. The owner or operator shall certify annually that these operating procedures are current and accurate."

During the inspection, I reviewed the operating procedures for the following units: Regeneration 2, Unit No. 8, and Logistics. For the units in question, the last five (5) years of annual certifications were requested. For Regeneration 2, the only annual certifications that were provided were from 2009 through 2012. For Unit No. 8, the only annual certification that was provided was from 2012. For Logistics, the only annual certifications that were provided were from 2008 through 2012. **See Attachment 4** for a copy of the annual certifications provided by Rhodia.

According to 40 C.F.R. § 68.69(a)(3), "The owner or operator shall develop and implement written operating procedures that provide clear instructions for safely conducting activities involved in each covered process consistent with the process safety information and shall address at least the following elements: … (3) Safety and health considerations: (i) Properties of, and hazards presented by, the chemicals used in the process; (ii) Precautions necessary to prevent exposure, including engineering controls, administrative controls, and personal protective equipment; (iii) Control measures to be taken if physical contact or airborne exposure occurs; (iv) Quality control for raw materials and control of hazardous chemical inventory levels; and, (v) Any special or unique hazards."

During the inspection, I reviewed operating procedures for the units in question. Of the procedures reviewed, it appears these units all lacked information regarding the following Safety and health considerations: (iii) Control measures to be taken if physical contact or airborne exposure occurs; (iv) Quality control for raw materials and control of hazardous chemical inventory levels; and, (v) Any special or unique hazards. When asked about this particular information the Personal Protective Equipment (PPE) Matrix was referenced; however, after reviewing the PPE Matrix, it failed to address the specific considerations mentioned above. Rhodia then explained that this information could be found in the General Plant Safety Rules, which were not referenced in the operating procedures. I recommended that Rhodia consider linking these documents for easier accessability. See **Attachment 4** for a copy of the PPE Matrix and the operating procedures provided for Regeneration 2, Unit No. 8, and Logistics.

40 C.F.R. § 68.71 Training

According to 40 C.F.R. § 68.71(c), "The owner or operator shall ascertain that each employee involved in operating a process has received and understood the training required by this paragraph. The owner or operator shall prepare a record which contains the identity of the employee, the date of training, and the means used to verify that the employee understood the training."

During the inspection, I reviewed the training records provided for operators in Regeneration 2, Unit No. 8, and Logistics. From the information provided, it appears that refresher training may have not been conducted in all the units in question. The documentation provided lacks the information to determine whether each entry is an initial training or a refresher training. No

historical records were provided to show refresher training was given prior to the dates shown on the documents. Likewise, the means used to verify that the employees understood the training has no consistency. Some entries noted a number grade and others entries simply circled Pass or Fail. See **Attachment 5** for the operator training records.

40 C.F.R. § 68.73 Mechanical Integrity

I requested the mechanical integrity inspection records for both fixed and rotating equipment for the units in question: Regeneration 2, Unit No. 8, and Logistics. Random components were selected and the corresponding inspection documents were reviewed.

40 C.F.R. § 68.75 Management of Change

I reviewed documentation of this process and how it is implemented at the Rhodia.

40 C.F.R. § 68.77 Pre-startup Review

I reviewed documentation of this process and how it is implemented at the Rhodia.

40 C.F.R. § 68.79 Compliance Audits

Rhodia has completed a compliance audit at least once every three years. I was provided with compliance audits for 2009 and 2012. See **Attachment 6** for copies of these documents.

40 C.F.R. § 68.81 Incident Investigations

Two (2) incident investigations were conducted for incidents reported in the accident history of the RMP, which occurred on November 29, 2008 and June 9, 2012. I reviewed the documentation for both incidents.

40 C.F.R. § 68.83 Employee Participation

I reviewed the documentation of this process and how it is implemented at Rhodia.

40 C.F.R. § 68.85 Hot Work Permits

I reviewed hot work permits from different operating areas in the units in question to check for accuracy and detail on the jobs being conducted. Hot work permits are kept for seven (7) days after the job is completed. Monthly audits of the hot work permits are conducted thereafter. See **Attachment 8** for copies of the hot work permits.

40 C.F.R. § 68.87 Contractors

I reviewed documentation of this process and how it is implemented at Rhodia.

Subpart E - Emergency Response

I reviewed records for the Emergency Response Plan in place at Rhodia. James Shaw, Safety Specialist, provided me with information regarding the Emergency Response Plan in place at Rhodia. Based on the information provided, it appears that Rhodia personnel are informed of the plan and what steps to take in such an instance. Training records for several personnel were reviewed and the records provided were current. Inspection records for selected components were reviewed and the records provided were current.

Subpart G - Risk Management Plan

40 C.F.R. § 68.150 Submission

Rhodia submitted a single RMP on November 8, 2012, which included the majority of the information required in 40 C.F.R. § 68.150 (**Attachment 2**).

40 C.F.R. § 68.195 Required Corrections

40 C.F.R. § 68.195(b) requires within one (1) month of any change in the emergency contact information required under 40 C.F.R. § 68.160(b)(6), the owner or operator shall submit a correction of that information. No changes to the emergency contact information were observed at Rhodia that required an update of the RMP.

Title V Deviation Reporting

During the inspection, Title V deviation reporting was discussed. The findings in the RMP Audits or potential 40 C.F.R. Part 68 deviations were not reported in the deviation reports. Rhodia has plans to implement such reporting in the future.

Closing

A closing conference was held on April 24, 2013. I presented the areas of concern discovered during my inspection. The Rhodia employees that were present can be found in **Attachment 7**.

Section III – AREAS OF CONCERN

The following areas of concern were discovered during my inspection and discussed with the Rhodia employees during the closing conference:

1. According to 40 C.F.R. § 68.15(c), "When responsibility for implementing individual requirements of this part is assigned to persons other than the person identified under paragraph (b) of this section, the names or positions of these people shall be documented and the lines of authority defined through an organization chart or similar document."

Based of my review of the information in **Attachment 3,** it appears that Rhodia may not be in compliance with 40 C.F.R. § 68.15(c).

2. According to 40 C.F.R. § 68.69(c), "The operating procedures shall be reviewed as often as necessary to assure that they reflect current operating practice, including changes that result from changes in process chemicals, technology, and equipment, and changes to stationary sources. The owner or operator shall certify annually that these operating procedures are current and accurate." Based on my review of the information in **Attachment 4,** it appears that Rhodia may not be in compliance with 40 C.F.R. § 68.69(c).

3. According to 40 C.F.R. § 68.69(a)(3), "The owner or operator shall develop and implement written operating procedures that provide clear instructions for safely conducting activities involved in each covered process consistent with the process safety information and shall address at least the following elements. Safety and health considerations: Properties of, and hazards presented by, the chemicals used in the process; Precautions necessary to prevent exposure, including engineering controls, administrative controls, and personal protective equipment; Control measures to be taken if physical contact or airborne exposure occurs; Quality control for raw materials and control of hazardous chemical inventory levels; and, Any special or unique hazards." Based on my review of the information in **Attachment 4,** it appears that Rhodia may not be in compliance with 40 C.F.R §68.69(a)(3).

4. According to 40 C.F.R. § 68.71(c), "The owner or operator shall ascertain that each employee involved in operating a process has received and understood the training required by this paragraph. The owner or operator shall prepare a record which contains the identity of the employee, the date of training, and the means used to verify that the employee understood the training." Based on my review of the information in **Attachment 5,** it appears that Rhodia may not be in compliance with 40 C.F.R § 68.71(c).

Section III – ATTACHMENTS

1. **Process Description and corresponding Process Flow Diagrams**
2. **Current RMP Submittal**
3. **Facility Management System**
4. **Operating Procedures and Certifications**
5. **Operator Training Records**
6. **Compliance Audits**
7. **Exit Briefing Sign-In Sheet**
8. **Hot Work Permits**
9. **Process Chemistry (CBI) and Maximum Intended Inventory (CBI)**

RMP Program Level 3 Process Checklist	Facility Name: Rhodia – Houston Plant

Section A – Management [68.15]

Management system developed and implemented as provided in 40 CFR 68.15? Comments:	☐S	☐M	■U	☐N/A

Has the owner or operator:

1. Developed a management system to oversee the implementation of the risk management program elements? [68.15(a)]	☐Y	☐N	☐N/A
2. Assigned a qualified person or position that has the overall responsibility for the development, implementation, and integration of the risk management program elements? [68.15(b)] **George Baran**	☐Y	☐N	☐N/A
3. Documented other persons responsible for implementing individual requirements of the risk management program and defined the lines of authority through an organization chart or similar document? [68.15(c)] **An organizational chart is in place but as to defining specific lines of authority and their responsibilities with implementing the RMP has not been created nor was presented. Rhodia should look into creating such a document.**	☐Y	■N	☐N/A

Section B: Hazard Assessment [68.20-68.42]

Hazard assessment conducted and documented as provided in 40 CFR 68.20-68.42? Comments:	■S	☐M	☐U	☐N/A

Hazard Assessment: Offsite consequence analysis parameters [68.22]

1. Used the following endpoints for offsite consequence analysis for a worst-case scenario: [68.22(a)] ■ For toxics: the endpoints provided in Appendix A of 40 CFR Part 68? [68.22(a)(1)] ■ For flammables: an explosion resulting in an overpressure of 1 psi? [68.22(a)(2)(i)]; or ☐ For flammables: a fire resulting in a radiant heat/exposure of 5 kw/m^2 for 40 seconds? [68.22(a)(2)(ii)] ☐ For flammables: a concentration resulting in a lower flammability limit, as provided in NFPA documents or other generally recognized sources? [68.22(a)(2)(iii)]	■Y	☐N	☐N/A
2. Used the following endpoints for offsite consequence analysis for an alternative release scenario: [68.22(a)] ■ For toxics: the endpoints provided in Appendix A of 40 CFR Part 68? [68.22(a)(1)] ■ For flammables: an explosion resulting in an overpressure of 1 psi? [68.22(a)(2)(i)] ☐ For flammables: a fire resulting in a radiant heat/exposure of 5 kw/m^2 for 40 seconds? [68.22(a)(2)(ii)] ☐ For flammables: a concentration resulting in a lower flammability limit, as provided in NFPA documents or other generally recognized sources? [68.22(a)(2)(iii)]	■Y	☐N	☐N/A
3. Used appropriate wind speeds and stability classes for the release analysis? [68.22(b)]	■Y	☐N	☐N/A
4. Used appropriate ambient temperature and humidity values for the release analysis? [68.22(c)]	■Y	☐N	☐N/A
5. Used appropriate values for the height of the release for the release analysis? [68.22(d)]	■Y	☐N	☐N/A
6. Used appropriate surface roughness values for the release analysis? [68.22(e)]	■Y	☐N	☐N/A
7. Do tables and models, used for dispersion analysis of toxic substances, appropriately account for dense or neutrally buoyant gases? [68.22(f)]	■Y	☐N	☐N/A
8. Were liquids, other than gases liquefied by refrigeration only, considered to be released at the highest daily maximum temperature, based on data for the previous three years appropriate for a stationary source, or at process temperature, whichever is higher? [68.22(g)]	■Y	☐N	☐N/A

RMP Program Level 3 Process Checklist	Facility Name: Rhodia – Houston Plant		
Hazard Assessment: Worst-case release scenario analysis [68.25]			
9. Analyzed and reported in the RMP one worst-case release scenario estimated to create the greatest distance to an endpoint resulting from an accidental release of a regulated toxic substance from covered processes under worst-case conditions? [68.25(a)(2)(i)]	■Y	☐N	☐N/A
10. Analyzed and reported in the RMP one worst-case release scenario estimated to create the greatest distance to an endpoint resulting from an accidental release of a regulated flammable substance from covered processes under worst-case conditions? [68.25(a)(2)(ii)]	■Y	☐N	☐N/A
11. Analyzed and reported in the RMP additional worst-case release scenarios for a hazard class if the worst-case release from another covered process at the stationary source potentially affects public receptors different from those potentially affected by the worst-case release scenario developed under 68.25(a)(2)(i) or 68.25(a)(2)(ii)? [68.25(a)(2)(iii)]	☐Y	☐N	■N/A
12. Has the owner or operator determined the worst-case release quantity to be the greater of the following: [68.25(b)] ■ If released from a vessel, the greatest amount held in a single vessel, taking into account administrative controls that limit the maximum quantity? [68.25(b)(1)] ☐ If released from a pipe, the greatest amount held in the pipe, taking into account administrative controls that limit the maximum quantity? [68.25(b)(2)]	■Y	☐N	☐N/A
13.a. Has the owner or operator for toxic substances that are normally gases at ambient temperature and handled as a gas or liquid under pressure:			
13.a.(1) Assumed the whole quantity in the vessel or pipe would be released as a gas over 10 minutes? [68.25(c)(1)]	☐Y	☐N	■N/A
13.a.(2) Assumed the release rate to be the total quantity divided by 10, if there are no passive mitigation systems in place? [68.25(c)(1)]	☐Y	☐N	■N/A
13.b. Has the owner or operator for toxic gases handled as refrigerated liquids at ambient pressure:			
13.b.(1) Assumed the substance would be released as a gas in 10 minutes, if not contained by passive mitigation systems or if the contained pool would have a depth of 1 cm or less? [68.25(c)(2)(i)]	☐Y	☐N	■N/A
13.b.(2) If released substance would be contained by passive mitigation systems in a pool with a depth > 1 cm; ☐ Assumed the quantity in the vessel or pipe (as determined per 68.25(b)) would be spilled instantaneously to form a liquid pool? [68.25(c)(2)(ii)] ☐ Calculated the volatility rate at the boiling point of the substance and at the conditions specified in 68.25(d)? [68.25(c)(2)(ii)]	☐Y	☐N	■N/A
13.c. Has the owner or operator for toxic substances that are normally liquids at ambient temperature:			
13.c.(1) Assumed the quantity in the vessel or pipe would be spilled instantaneously to form a liquid pool? [68.25(d)(1)]	■Y	☐N	☐N/A
13.c.(2) Determined the surface area of the pool by assuming that the liquid spreads to 1 cm deep, if there is no passive mitigation system in place that would serve to contain the spill and limit the surface area, or if passive mitigation is in place, was the surface area of the contained liquid used to calculate the volatilization rate? [68.25(d)(1)(i)]	■Y	☐N	☐N/A
13.c.(3) Taken into account the actual surface characteristics, if the release would occur onto a surface that is not paved or smooth? [68.25(d)(1)(ii)]	■Y	☐N	☐N/A
13.c.(4) Determined the volatilization rate by accounting for the highest daily maximum temperature in the past three years, the temperature of the substance in the vessel, and the concentration of the substance if the liquid spilled is a mixture or solution? [68.25(d)(2)]	■Y	☐N	☐N/A
13.c.(5) Determined the rate of release to air from the volatilization rate of the liquid pool? [68.25(d)(3)]	■Y	☐N	☐N/A

13.c.(6) Determined the rate of release to air by using the methodology in the RMP Offsite Consequence Analysis Guidance, any other publicly available techniques that account for the modeling conditions and are recognized by industry as applicable as part of current practices, or proprietary models that account for the modeling conditions may be used provided the owner or operator allows the implementing agency access to the model and describes model features and differences from publicly available models to local emergency planners upon request? [68.25(d)(3)] What modeling technique did the owner or operator use? [68.25(g)] EPA RMP COMP	■Y ☐N ☐N/A
13.d. Has the owner or operator for flammables:	
13.d.(1) Assumed the quantity in a vessel(s) of flammable gas held as a gas or liquid under pressure or refrigerated gas released to an undiked area vaporizes resulting in a vapor cloud explosion? [68.25(e)]	■Y ☐N ☐N/A
13.d.(2) For refrigerated gas released to a contained area or liquids released below their atmospheric boiling point, assumed the quantity volatilized in 10 minutes results in a vapor cloud? [68.25(f)]	☐Y ☐N ■N/A
13.d.(3) Assumed a yield factor of 10% of the available energy is released in the explosion for determining the distance to the explosion endpoint, if the model used is based on TNT-equivalent methods? [68.25(e)]	■Y ☐N ☐N/A
14. Used the parameters defined in 68.22 to determine distance to the endpoints? [68.25(g)]	■Y ☐N ☐N/A
15. Determined the rate of release to air by using the methodology in the RMP Offsite Consequence Analysis Guidance, any other publicly available techniques that account for the modeling conditions and are recognized by industry as applicable as part of current practices, or proprietary models that account for the modeling conditions may be used provided the owner or operator allows the implementing agency access to the model and describes model features and differences from publicly available models to local emergency planners upon request? [68.25(g)] What modeling technique did the owner or operator use? [68.25(g)] RMP COMP	■Y ☐N ☐N/A
16. Ensured that the passive mitigation system, if considered, is capable of withstanding the release event triggering the scenario and will still function as intended? [68.25(h)]	☐Y ☐N ■N/A
17. Considered also the following factors in selecting the worst-case release scenarios: [68.25(i)] ■ Smaller quantities handled at higher process temperature or pressure? [68.25(i)(1)] ☐ Proximity to the boundary of the stationary source? [68.25(i)(2)]	■Y ☐N ☐N/A
Hazard Assessment: Alternative release scenario analysis [68.28]	
18. Identified and analyzed at least one alternative release scenario for each regulated toxic substance held in a covered process(es) and at least one alternative release scenario to represent all flammable substances held in covered processes? [68.28(a)]	■Y ☐N ☐N/A
19. Selected a scenario: [68.28(b)] ■ That is more likely to occur than the worst-case release scenario under 68.25? [68.28(b)(1)(i)] ☐ That will reach an endpoint off-site, unless no such scenario exists? [68.28(b)(1)(ii)]	■Y ☐N ☐N/A
20. Considered release scenarios which included, but are not limited to, the following: [68.28(b)(2)] ■ Transfer hose releases due to splits or sudden hose uncoupling? [68.28(b)(2)(i)] ■ Process piping releases from failures at flanges, joints, welds, valves and valve seals, and drains or bleeds? [68.28(b)(2)(ii)] ■ Process vessel or pump releases due to cracks, seal failure, or drain, bleed, or plug failure? [68.28(b)(2)(iii)] ■ Vessel overfilling and spill, or overpressurization and venting through relief valves or rupture disks? [68.28(b)(2)(iv)] ■ Shipping container mishandling and breakage or puncturing leading to a spill? [68.28(b)(2)(v)]	■Y ☐N ☐N/A

21. Used the parameters defined in 68.22 to determine distance to the endpoints? [68.28(c)]	■Y	☐N	☐N/A
22. Determined the rate of release to air by using the methodology in the RMP Offsite Consequence Analysis Guidance, any other publicly available techniques that account for the modeling conditions and are recognized by industry as applicable as part of current practices, or proprietary models that account for the modeling conditions may be used provided the owner or operator allows the implementing agency access to the model and describes model features and differences from publicly available models to local emergency planners upon request? [68.28(c)] What modeling technique did the owner or operator use? [68.25(g)] RMP COMP	■Y	☐N	☐N/A
23. Ensured that the passive and active mitigation systems, if considered, are capable of withstanding the release event triggering the scenario and will be functional? [68.28(d)]	■Y	☐N	☐N/A
24. Considered the following factors in selecting the alternative release scenarios: [68.28(e)] ■ The five-year accident history provided in 68.42? [68.28(e)(1)] ■ Failure scenarios identified under 68.50? [68.28(e)(2)]	■Y	☐N	☐N/A
Hazard Assessment: Defining off-site impacts–Population [68.30]			
25. Estimated population that would be included in the distance to the endpoint in the RMP based on a circle with the point of release at the center? [68.30(a)]	■Y	☐N	☐N/A
26. Identified the presence of institutions, parks and recreational areas, major commercial, office, and industrial buildings in the RMP? [68.30(b)]	■Y	☐N	☐N/A
27. Used most recent Census data, or other updated information to estimate the population? [68.30(c)]	■Y	☐N	☐N/A
28. Estimated the population to two significant digits? [68.30(d)]	■Y	☐N	☐N/A
Hazard Assessment: Defining off-site impacts–Environment [68.33]			
29. Identified environmental receptors that would be included in the distance to the endpoint based on a circle with the point of release at the center? [68.33(a)]	■Y	☐N	☐N/A
30. Relied on information provided on local U.S.G.S. maps, or on any data source containing U.S.G.S. data to identify environmental receptors? [Source may have used LandView to obtain information] [68.33(b)]	■Y	☐N	☐N/A
Hazard Assessment: Review and update [68.36]			
31. Reviewed and updated the off-site consequence analyses at least once every five years? [68.36(a)]	■Y	☐N	☐N/A
32. Completed a revised analysis and submit a revised RMP within six months of a change in processes, quantities stored or handled, or any other aspect that might reasonably be expected to increase or decrease the distance to the endpoint by a factor of two or more? [68.36(b)]	■Y	☐N	☐N/A
Hazard Assessment: Documentation [68.39]			
33. For worst-case scenarios: a description of the vessel or pipeline and substance selected, assumptions and parameters used, the rationale for selection, and anticipated effect of the administrative controls and passive mitigation on the release quantity and rate? [68.39(a)]	■Y	☐N	☐N/A
34. For alternative release scenarios: a description of the scenarios identified, assumptions and parameters used, the rationale for the selection of specific scenarios, and anticipated effect of the administrative controls and mitigation on the release quantity and rate? [68.39(b)]	■Y	☐N	☐N/A
35. Documentation of estimated quantity released, release rate, and duration of release? [68.39(c)]	■Y	☐N	☐N/A
36. Methodology used to determine distance to endpoints? [68.39(d)]	■Y	☐N	☐N/A
37. Data used to estimate population and environmental receptors potentially affected? [68.39(e)]	■Y	☐N	☐N/A

Hazard Assessment: Five-year accident history [68.42]

38. Has the owner or operator included all accidental releases from covered processes that resulted in deaths, injuries, or significant property damage on site, or known offsite deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage? [68.42(a)] **Please see the documentation provided for the incidents that occurred on June 9, 2012 and November 29, 2008.**	■Y ☐N ☐N/A
39. Has the owner or operator reported the following information for each accidental release: [68.42(b)] ■ Date, time, and approximate duration of the release? [68.42(b)(1)] ■ Chemical(s) released? [68.42(b)(2)] ■ Estimated quantity released in pounds and percentage weight in a mixture (toxics)? [68.42(b)(3)] ■ NAICS code for the process? [68.42(b)(4)] ■ The type of release event and its source? [68.42(b)(5)] ■ Weather conditions (if known)? [68.42(b)(6)] ■ On-site impacts? [68.42(b)(7)] ■ Known offsite impacts? [68.42(b)(8)] ■ Initiating event and contributing factors (if known)? [68.42(b)(9)] ■ Whether offsite responders were notified (if known)? [68.42(b)(10)] ■ Operational or process changes that resulted from investigation of the release? [68.42(b)(11)]	■Y ☐N ☐N/A

Section C: Prevention Program

Implemented the Program 3 prevention requirements as provided in 40 CFR 68.65 - 68.87? ☐S ☐M ■U ☐N/A
Comments:

Prevention Program- Safety information [68.65]

1. Has the owner or operator compiled written process safety information, which includes information pertaining to the hazards of the regulated substances used or produced by the process, information pertaining to the technology of the process, and information pertaining to the equipment in the process, before conducting any process hazard analysis required by the rule? [68.65(a)] Does the process safety information contain the following for hazards of the substances: [68.65(b)] ■ Material Safety Data Sheets (MSDS) that meet the requirements of the OSHA Hazard Communication Standard [29 CFR 1910.1200(g)]? [68.48(a)(1)] ■ Toxicity information? [68.65(b)(1)] ■ Permissible exposure limits? [68.65(b)(2)] ■ Physical data? [68.65(b)(3)] ■ Reactivity data? [68.65(b)(4)] ■ Corrosivity data? [68.65(b)(5)] ■ Thermal and chemical stability data? [68.65(b)(6)] ■ Hazardous effects of inadvertent mixing of materials that could foreseeably occur? [68.65(b)(7)]	■Y ☐N ☐N/A

2. Has the owner documented information pertaining to technology of the process? ■ A block flow diagram or simplified process flow diagram? [68.65(c)(1)(i)] ■ Process chemistry? [68.65(c)(1)(ii)] ■ Maximum intended inventory? [68.65(c)(1)(iii)] ■ Safe upper and lower limits for such items as temperatures, pressures, flows, or compositions? [68.65(c)(1)(iv)] ■ An evaluation of the consequences of deviation? [68.65(c)(1)(iv)]	■Y ☐N ☐N/A
3. Does the process safety information contain the following for the equipment in the process: [68.65(d)(1)] ■ Materials of construction? 68.65(d)(1)(i)] ■ Piping and instrumentation diagrams [68.65(d)(1)(ii)] ■ Electrical classification? [68.65(d)(1)(iii)] ■ Relief system design and design basis? [68.65(d)(1)(iv)] ■ Ventilation system design? [68.65(d)(1)(v)] ■ Design codes and standards employed? [68.65(d)(1)(vi)] ☐ Material and energy balances for processes built after June 21, 1999? [68.65(d)(1)(vii)] ■ Safety systems? [68.65(d)(1)(viii)]	■Y ☐N ☐N/A
4. Has the owner or operator documented that equipment complies with recognized and generally accepted good engineering practices? [68.65(d)(2)]	■Y ☐N ☐N/A
5. Has the owner or operator determined and documented that existing equipment, designed and constructed in accordance with codes, standards, or practices that are no longer in general use, is designed, maintained, inspected, tested, and operating in a safe manner? [68.65(d)(3)]	■Y ☐N ☐N/A
Prevention Program- Process Hazard Analysis [68.67]	
6. Has the owner or operator performed an initial process hazard analysis (PHA), and has this analysis identified, evaluated, and controlled the hazards involved in the process? [68.67(a)]	■Y ☐N ☐N/A
7. Has the owner or operator determined and documented the priority order for conducting PHAs, and was it based on an appropriate rationale? [68.67(a)]	■Y ☐N ☐N/A
8. Has the owner used one or more of the following technologies to conduct process PHA: [68.67(b)] ■ What-if? [68.67(b)(1)] ■ Checklist? [68.67(b)(2)] ☐ What-if/Checklist? [68.67(b)(3)] ■ Hazard and Operability Study (HAZOP) [68.67(b)(4)] ☐ Failure Mode and Effects Analysis (FMEA) [68.67(b)(5)] ☐ Fault Tree Analysis? [68.67(b)(6)] ■ An appropriate equivalent methodology? [68.67(b)(7)] **–Layers of Protection**	■Y ☐N ☐N/A

9. Did the PHA address: ■ The hazards of the process? [68.67(c)(1)] ■ Identification of any incident that had a likely potential for catastrophic consequences? [68.67(c)(2)] ■ Engineering and administrative controls applicable to hazards and interrelationships?[68.67(c)(3)] ■ Consequences of failure of engineering and administrative controls? [68.67(c)(4)] ■ Stationary source siting? [68.67(c)(5)] ■ Human factors? [68.67(c)(6)] ■ An evaluation of a range of the possible safety and health effects of failure of controls? [68.67(c)(7)]	■Y	☐N	☐N/A
10. Was the PHA performed by a team with expertise in engineering and process operations and did the team include appropriate personnel? [68.67(d)]	■Y	☐N	☐N/A
11. Has the owner or operator established a system to promptly address the team's findings and recommendations; assured that the recommendations are resolved in a timely manner and documented; documented what actions are to be taken; completed actions as soon as possible; developed a written schedule of when these actions are to be completed; and communicated the actions to operating, maintenance, and other employees whose work assignments are in the process and who may be affected by the recommendations? [68.67(e)] **Action Tracking has been in place since 2006.**	■Y	☐N	☐N/A
12. Has the PHA been updated and revalidated by a team every five years after the completion of the initial PHA to assure that the PHA is consistent with the current process? [68.67(f)]	■Y	☐N	☐N/A
13. Has the owner or operator retained PHAs and updates or revalidations for each process covered, as well as the resolution of recommendations for the life of the process? [68.67(g)]	■Y	☐N	☐N/A
Prevention Program- Operating procedures [68.69]			
14. Has the owner or operator developed and implemented written operating procedures that provide instructions or steps for conducting activities associated with each covered process consistent with the safety information? [68.69(a)]	■Y	☐N	☐N/A

15	Do the procedures address the following: [68.69(a)] Steps for each operating phase: [68.69(a)(1)] ■ Initial Startup? [68.69(a)(1)(i)] ■ Normal operations? [68.69(a)(1)(ii)] ☐ Temporary operations? [68.69((a)(1)(iii)] ■ Emergency shutdown including the conditions under which emergency shutdown is required, and the assignment of shutdown responsibility to qualified operators to ensure that emergency shutdown is executed in a safe and timely manner? [68.69(a)(1)(iv)] ■ Emergency operations? [68.69(a)(1)(v)] ■ Normal shutdown? [68.68(a)(1)(vi)] ■ Startup following a turnaround, or after emergency shutdown? [68.69(a)(1)(vii)] Operating limits: [68.69(a)(2)] ■ Consequences of deviations [68.69(a)(2)(i)] (Critical Operating Parameters) ■ Steps required to correct or avoid deviation? [68.69(a)(2)(ii)] (Safety and health considerations: [68.69(a)(3)] ■ Properties of, and physical hazards presented by, the chemicals used in the process [68.69(a)(3)(i)] ■ Precautions necessary to prevent exposure, including engineering controls, administrative controls, and personal protective equipment? [68.69(a)(3)(ii)] – **References PPE Matrix** ☐ [redacted] ☐ [redacted] ☐ [redacted] ■ Safety systems and their functions? [68.69(a)(4)]	☐Y	■N	☐N/A
16.	Are operating procedures readily accessible to employees who are involved in a process? [68.69(b)] **Readily available via the network.**	■Y	☐N	☐N/A
17.	Has the owner or operator certified annually that the operating procedures are current and accurate and that procedures have been reviewed as often as necessary? [68.69(c)] **The last five years of annual certifications were requested for the following units: Logistics, Regen II, and Unit #8. 2008-2012 were provided for Logistics. 2009 -2012 were provided for Regen II. The year 2012 was provided for Unit#8.**	☐Y	■N	☐N/A
18.	Has the owner or operator developed and implemented safe work practices to provide for the control of hazards during specific operations, such as lockout/tagout? [68.69(d)]	■Y	☐N	☐N/A
Prevention Program - Training [68.71]				
19	Has each employee involved in operating a process, and each employee before being involved in operating a newly assigned process, been initially trained in an overview of the process and in the operating procedures? [68.71(a)(1)]	■Y	☐N	☐N/A
20.	Did initial training include emphasis on safety and health hazards, emergency operations including shutdown, and safe work practices applicable to the employee's job tasks? [68.71(a)(1)]	■Y	☐N	☐N/A
21.	In lieu of initial training for those employees already involved in operating a process on June 21, 1999, an owner or operator may certify in writing that the employee has the required knowledge, skills, and abilities to safely carry out the duties and responsibilities as specified in the operating procedures [68.71(a)(2)]	■Y	☐N	☐N/A
22.	Has refresher training been provided at least every three years, or more often if necessary, to each employee involved in operating a process to assure that the employee understands and adheres to the current operating procedures of the process? [68.71(b)]	■Y	☐N	☐N/A

23. Has owner or operator ascertained and documented in record that each employee involved in operating a process has received and understood the training required? [68.71(c)]	■Y	☐N	☐N/A
24. Does the prepared record contain the identity of the employee, the date of the training, and the means used to verify that the employee understood the training? [68.71(c)] **With all documentation provided and reviewed on training it would appear that the facility should look into adding an identifier for the employee to the form and consistent with a number grade as opposed to just a simple PASS or FAIL listed. Also, From the information provided it would appear that refresher training has not been conducted. The documentation of such information is lacking. There were current tests provided to the necessary personnel but the document does not reference whether this is an initial or refresher training. One could not tell what type of record they were looking at. EPA recommends the facility look into updating testing record information.**	☐Y	■N	☐N/A
Prevention Program - Mechanical Integrity [68.73]			
25. Has the owner or operator established and implemented written procedures to maintain the on-going integrity of the process equipment listed in 68.73(a)? [68.73(b)]	■Y	☐N	☐N/A
26. Has the owner or operator trained each employee involved in maintaining the on-going integrity of process equipment? [68.73(c)]	■Y	☐N	☐N/A
27. Performed inspections and tests on process equipment? [68.73(d)(1)]	■Y	☐N	☐N/A
28. Followed recognized and generally accepted good engineering practices for inspections and testing procedures? [68.73(d)(2)]	■Y	☐N	☐N/A
29. Ensured the frequency of inspections and tests of process equipment is consistent with applicable manufacturers' recommendations, good engineering practices, and prior operating experience? [68.73(d)(3)]	■Y	☐N	☐N/A
30. Documented each inspection and test that had been performed on process equipment, which identifies the date of the inspection or test, the name of the person who performed the inspection or test, the serial number or other identifier of the equipment on which the inspection or test was performed, a description of the inspection or test performed, and the results of the inspection or test? [68.73(d)(4)]	■Y	☐N	☐N/A
31. Corrected deficiencies in equipment that were outside acceptable limits defined by the process safety information before further use or in a safe and timely manner when necessary means were taken to assure safe operation? [68.73(e)]	■Y	☐N	☐N/A
32. Assured that equipment as it was fabricated is suitable for the process application for which it will be used in the construction of new plants and equipment? [68.73(f)(1)]	■Y	☐N	☐N/A
33. Performed appropriate checks and inspections to assure that equipment was installed properly and consistent with design specifications and the manufacturer's instructions? [68.73(f)(2)]	■Y	☐N	☐N/A
34. Assured that maintenance materials, spare parts and equipment were suitable for the process application for which they would be used? [68.73(f)(3)]	[redacted]		
Prevention Program - Management Of Change [68.75]			
35. Has the owner or operator established and implemented written procedures to manage changes to process chemicals, technology, equipment, and procedures, and changes to stationary sources that affect a covered process? [68.75(a)]	■Y	☐N	☐N/A
36. Do procedures assure that the following considerations are addressed prior to any change: [68.75(b)] ■ The technical basis for the proposed change? [68.75(b)(1)] ■ Impact of change on safety and health? [68.75(b)(2)] ■ Modifications to operating procedures? [68.75(b)(3)] ■ Necessary time period for the change? [68.75(b)(4)] ■ Authorization requirements for the proposed change? [68.75(b)(5)]	■Y	☐N	☐N/A

37. Were employees, involved in operating a process and maintenance, and contract employees, whose job tasks would be affected by a change in the process, informed of, and trained in, the change prior to start-up of the process or affected parts of the process? [68.75(c)]	■Y	☐N	☐N/A
38. If a change resulted in a change in the process safety information, was such information updated accordingly? [68.75(d)]	■Y	☐N	☐N/A
39. If a change resulted in a change in the operating procedures or practices, had such procedures or practices been updated accordingly? [68.75(e)]	■Y	☐N	☐N/A
Prevention Program - Pre-startup Safety Review [68.77]			
40. If the facility installed a new stationary source, or significantly modified an existing source, (as discussed at 68.77(a)) did it perform a pre-startup safety review prior to the introduction of a regulated substance to a process to confirm: [68.77(b)] ■ Construction and equipment was in accordance with design specifications? [68.77(b)(1)] ■ Safety, operating, maintenance, and emergency procedures were in place and were adequate? [68.77(b)(2)] ■ For new stationary sources, a process hazard analysis had been performed and recommendations had been resolved or implemented before startup? [68.77(b)(3)] ■ Modified stationary sources meet the requirements contained in management of change? [68.77(b)(3)] ■ Training of each employee involved in operating a process had been completed? [68.77(b)(4)]	■Y	☐N	☐N/A
Prevention Program - Compliance audits [68.79] Requested the two most recent audits.			
41. Has the owner or operator certified that the stationary source has evaluated compliance with the provisions of the prevention program at least every three years to verify that the developed procedures and practices are adequate and being followed? [68.79(a)]	■Y	☐N	☐N/A
42. Has the audit been conducted by at least one person knowledgeable in the process? [68.79(b)]	■Y	☐N	☐N/A
43. Are the audit findings documented in a report? [68.79(c)]	■Y	☐N	☐N/A
44. Has the owner or operator promptly determined and documented an appropriate response to each of the findings of the audit and documented that deficiencies had been corrected? [68.79(d)] **All action items are tracked in Manufacturing Solutions database. However some items have yet to be completed.**	■Y	☐N	☐N/A
45. Has the owner or operator retained the two most recent compliance reports? [68.79(e)] **EPA retrieved audits from the years 2009 and 2012.**	■Y	☐N	☐N/A
Prevention Program - Incident investigation [68.81]			
46. Has the owner or operator investigated each incident that resulted in, or could reasonably have resulted in a catastrophic release of a regulated substance? [68.81(a)]	■Y	☐N	☐N/A
47. Were all incident investigations initiated not later than 48 hours following the incident? [68.81(b)]	■Y	☐N	☐N/A
48. Was an accident investigation team established and did it consist of at least one person knowledgeable in the process involved, including a contract employee if the incident involved work of a contractor, and other persons with appropriate knowledge and experience to thoroughly investigate and analyze the incident? [68.81(c)]	■Y	☐N	☐N/A
49. Was a report prepared at the conclusion of every investigation? [68.81(d)]	■Y	☐N	☐N/A

50. Does every report include: [68.81(d)] ■ Date of incident? [68.81(d)(1)] ■ Date investigation began? [68.81(d)(2)] ■ A description of the incident? [68.81(d)(3)] ■ The factors that contributed to the incident? [68.81(d)(4)] ■ Any recommendations resulting from the investigation? [68.81(d)(5)]	■Y	☐N	☐N/A
51. Has the owner or operator established a system to address and resolve the report findings and recommendations, and are the resolutions and corrective actions documented? [68.81(e)]	■Y	☐N	☐N/A
52. Was the report reviewed with all affected personnel whose job tasks are relevant to the incident findings including contract employees where applicable? [68.81(f)]	■Y	☐N	☐N/A
53. Has the owner or operator retained incident investigation reports for at least five years? [68.81(g)]	■Y	☐N	☐N/A

Section D - Employee Participation [68.83]

1. Has the owner or operator developed a written plan of action regarding the implementation of the employee participation required by this section? [68.83(a)]	■Y	☐N	☐N/A
2. Has the owner or operator consulted with employees and their representatives on the conduct and development of process hazards analyses and on the development of the other elements of process safety management in chemical accident prevention provisions? [68.83(b)]	■Y	☐N	☐N/A
3. Has the owner or operator provided to employees and their representatives access to process hazards analyses and to all other information required to be developed under the chemical accident prevention rule? [68.83(c)]	■ Y	☐N	☐N/A

Section E - Hot Work Permit [68.85]

1. Has the owner or operator issued a hot work permit for each hot work operation conducted on or near a covered process? [68.85(a)]	■Y	☐N	☐N/A
2. Does the permit document that the fire prevention and protection requirements in 29CFR 1910.252(a) have been implemented prior to beginning the hot work operations? [68.85(b)]	■Y	☐N	☐N/A
3. Does the permit indicate the date(s) authorized for hot work and the object(s) upon which hot work is to be performed? [68.85(b]	■Y	☐N	☐N/A
4. Are the permits being kept on file until completion of the hot work operations? [68.85(b)]	■Y	☐N	☐N/A

Section F - Contractors [68.87]

1. Has the owner or operator obtained and evaluated information regarding the contract owner or operator's safety performance and programs when selecting a contractor? [68.87(b)(1)]	■Y	☐N	☐N/A
2. Informed contract owner or operator of the known potential fire, explosion, or toxic release hazards related to the contractor's work and the process? [68.87(b)(2)]	■Y	☐N	☐N/A
3. Explained to the contract owner or operator the applicable provisions of the emergency response or the emergency action program? [68.87(b)(3)]	■Y	☐N	☐N/A
4. Developed and implemented safe work practices consistent with §68.69(d), to control the entrance, presence, and exit of the contract owner or operator and contract employees in the covered process areas? [68.87(b)(4)]	■Y	☐N	☐N/A
5. Periodically evaluated the performance of the contract owner or operator in fulfilling their obligations (as described at 68.87(c)(1) – (c)(5))? [68.87(b)(5)]	■Y	☐N	☐N/A

Section G - Emergency Response [68.90 - 68.95]

Developed and implemented an emergency response program as provided in 40 CFR 68.90-68.95? Comments:	■S	☐M	☐U	☐N/A
1. Is the facility designated as a "first responder" in case of an accidental release of regulated substances"	■Y	☐N	☐N/A	
1.a. If the facility is not a first responder:				
1.a.(1) For stationary sources with any regulated substances held in a process above threshold quantities, is the source included in the community emergency response plan developed under 42 U.S.C. 11003? [68.90(b)(1)]	☐Y	☐N	■N/A	
1.a.(2) For stationary sources with only regulated flammable substances held in a process above threshold quantities, has the owner or operator coordinated response actions with the local fire department? [68.90(b)(2)]	☐Y	☐N	■N/A	
1.a.(3) Are appropriate mechanisms in place to notify emergency responders when there is need for a response? [68.90(b)(3)]	☐Y	☐N	■N/A	
2. An emergency response plan is maintained at the stationary source and contains the following? [68.95(a)(1)] ■ Procedures for informing the public and local emergency response agencies about accidental releases? [68.95(a)(1)(i)] ■ Documentation of proper first-aid and emergency medical treatment necessary to treat accidental human exposures? [68.95(a)(1)(ii)] ■ Procedures and measures for emergency response after an accidental release of a regulated substance? [68.95(a)(1)(iii)]	■Y	☐N	☐N/A	
3. The emergency response plan contains procedures for the use of emergency response equipment and for its inspection, testing, and maintenance? [68.95(a)(2)] f;	■Y	☐N	☐N/A	
4. The emergency response plan requires, and there is documentation of, training for all employees in relevant procedures? [68.95(a)(3)]	■Y	☐N	☐N/A	
5. The owner or operator has developed and implemented procedures to review and update, as appropriate, the emergency response plan to reflect changes at the stationary source and ensure that employees are informed of changes? [68.95(a)(4)] **Annually reviewed or as necessary depending on any changes that may be required.**	■Y	☐N	☐N/A	
6. Did the owner or operator use a written plan that complies with other Federal contingency plan regulations or is consistent with the approach in the National Response Team's Integrated Contingency Plan Guidance (''One Plan'')? If so, does the plan include the elements provided in paragraph (a) of 68.95, and also complies with paragraph (c) of 68.95? [68.95(b)]	☐Y	☐N	■N/A	
7. Has the emergency response plan been coordinated with the community emergency response plan developed under EPCRA? [68.95(c)]	■Y	☐N	☐N/A	

Section H – Risk Management Plan [40 CFR 68.190 – 68.195]

1. Does the single registration form include, for each covered process, the name and CAS number of each regulated substance held above the threshold quantity in the process, the maximum quantity of each regulated substance or mixture in the process (in pounds) to two significant digits, the five- or six-digit NAICS code that most closely corresponds to the process and the Program level of the process? [68.160(b)(7)]	■Y	☐N	☐N/A
2. Did the facility assign the correct program level(s) to its covered process(es)? [68.160(b)(7)]	■Y	☐N	☐N/A

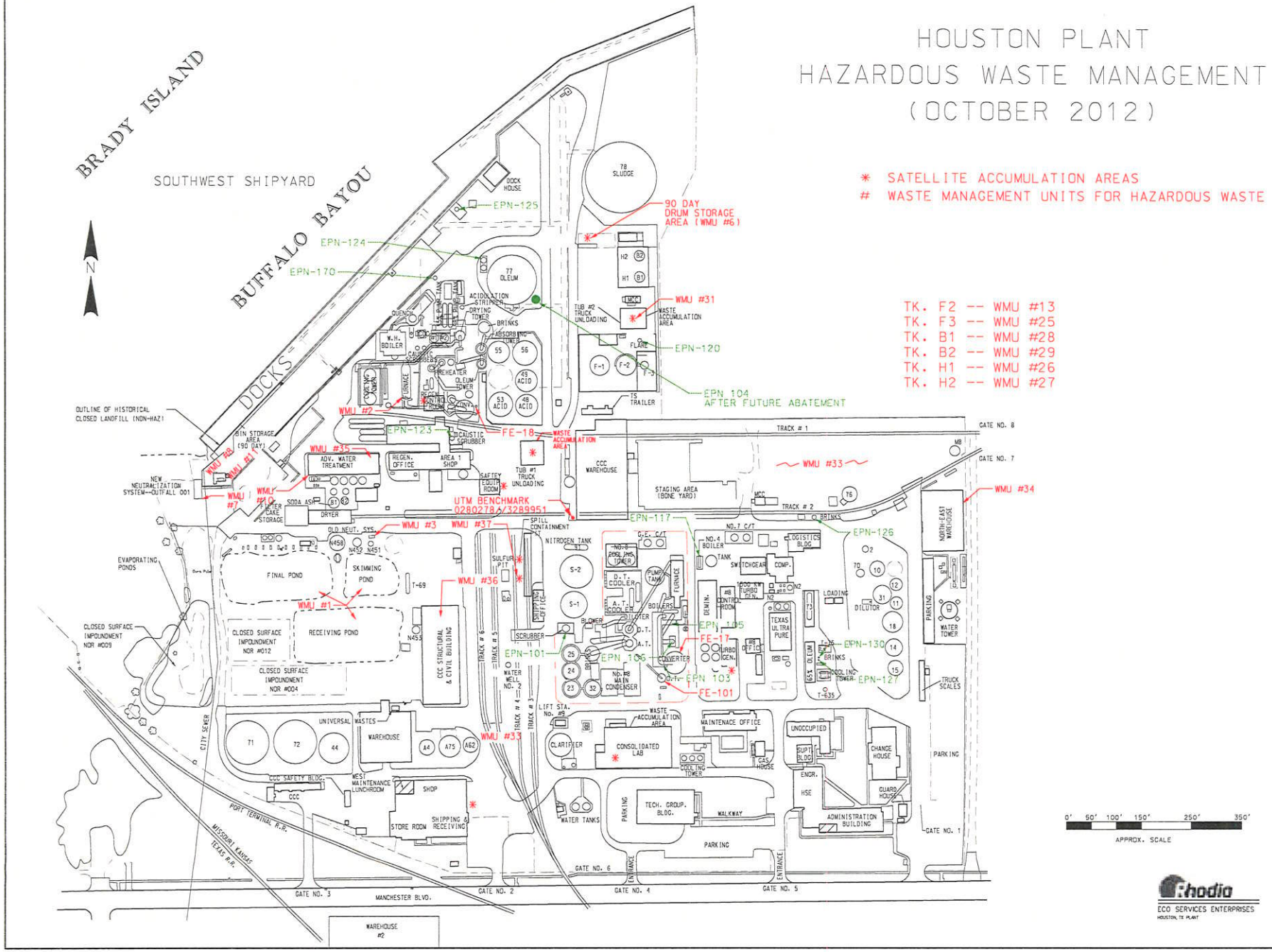
3.	Has the owner or operator reviewed and updated the RMP and submitted it to EPA [68.190(a)]? Reason for update: ■ Five-year update. [68.190(b)(1)] ☐ Within three years of a newly regulated substance listing. [68.190(b)(2)] ☐ At the time a new regulated substance is first present in an already regulated process above threshold quantities. [68.190(b)(3)] ☐ At the time a regulated substance is first present in an new process above threshold quantities. [68.190(b)(4)] ☐ Within six months of a change requiring revised PHA or hazard review. [68.190(b)(5)] ☐ Within six months of a change requiring a revised OCA as provided in 68.36. [68.190(b)(6)] ☐ Within six months of a change that alters the Program level that applies to any covered process. [68.190(b)(7)]	■Y ☐N ☐N/A
4.	If the owner or operator experienced an accidental release that met the five-year accident history reporting criteria (as described at 68.42) subsequent to April 9, 2004, did the owner or operator submit the information required at 68.168, 68.170(j) and 68.175(l) within six months of the release or by the time the RMP was updated as required at 68.190, whichever was earlier. [68.195(a)]	■Y ☐N ☐N/A
5.	If the emergency contact information required at 68.160(b)(6) has changed since June 21, 2004, did the owner or operator submit corrected information within thirty days of the change? [68.195(b)]	■Y ☐N ☐N/A

Section III – ATTACHMENTS

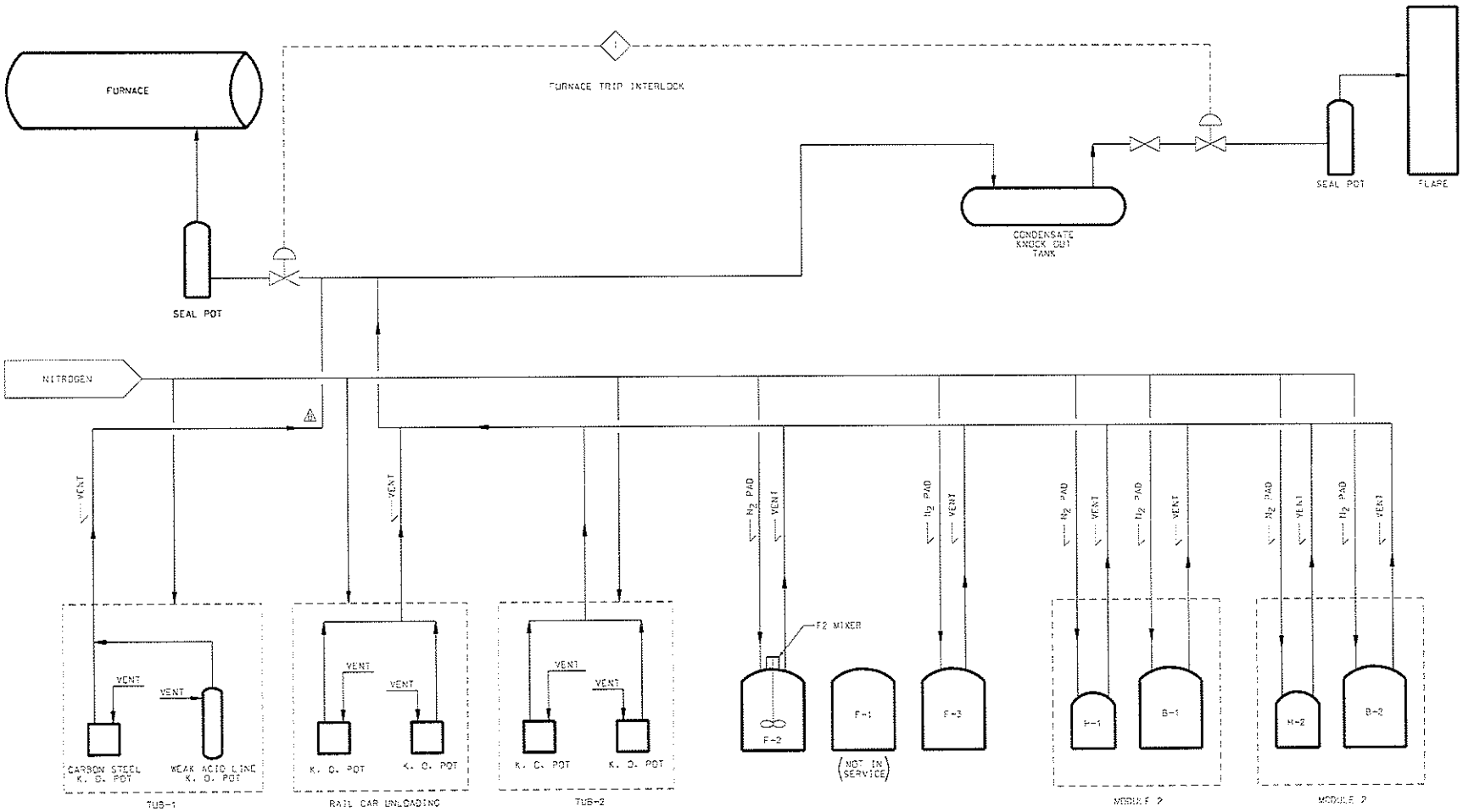
1. Process Description and corresponding Process Flow Diagrams
2. Current RMP Submittal
3. Facility Management System
4. Operating Procedures and Certifications
5. Operator Training Records
6. Compliance Audits
7. Exit Briefing Sign-In Sheet
8. Hot Work Permits
9. Process Chemistry (CBI) and Maximum Intended Inventory (CBI)

HOUSTON PLANT
HAZARDOUS WASTE MANAGEMENT
(OCTOBER 2012)

* SATELLITE ACCUMULATION AREAS
\# WASTE MANAGEMENT UNITS FOR HAZARDOUS WASTE



Rhodia
ECO SERVICES ENTERPRISES
HOUSTON, TX PLANT



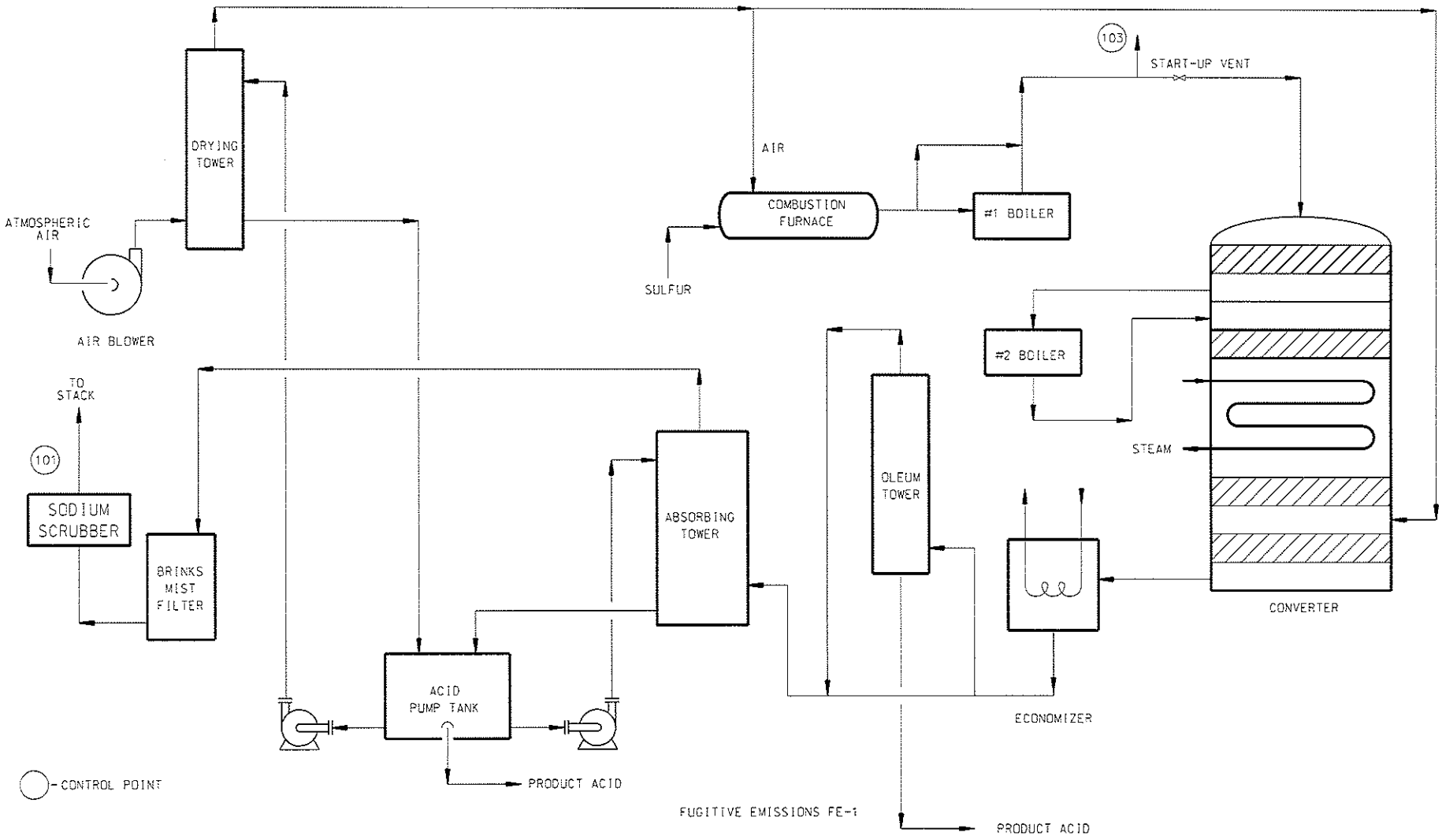
HAZARDOUS WASTE FACILITIES VENT SYSTEM PROCESS FLOW DIAGRAM

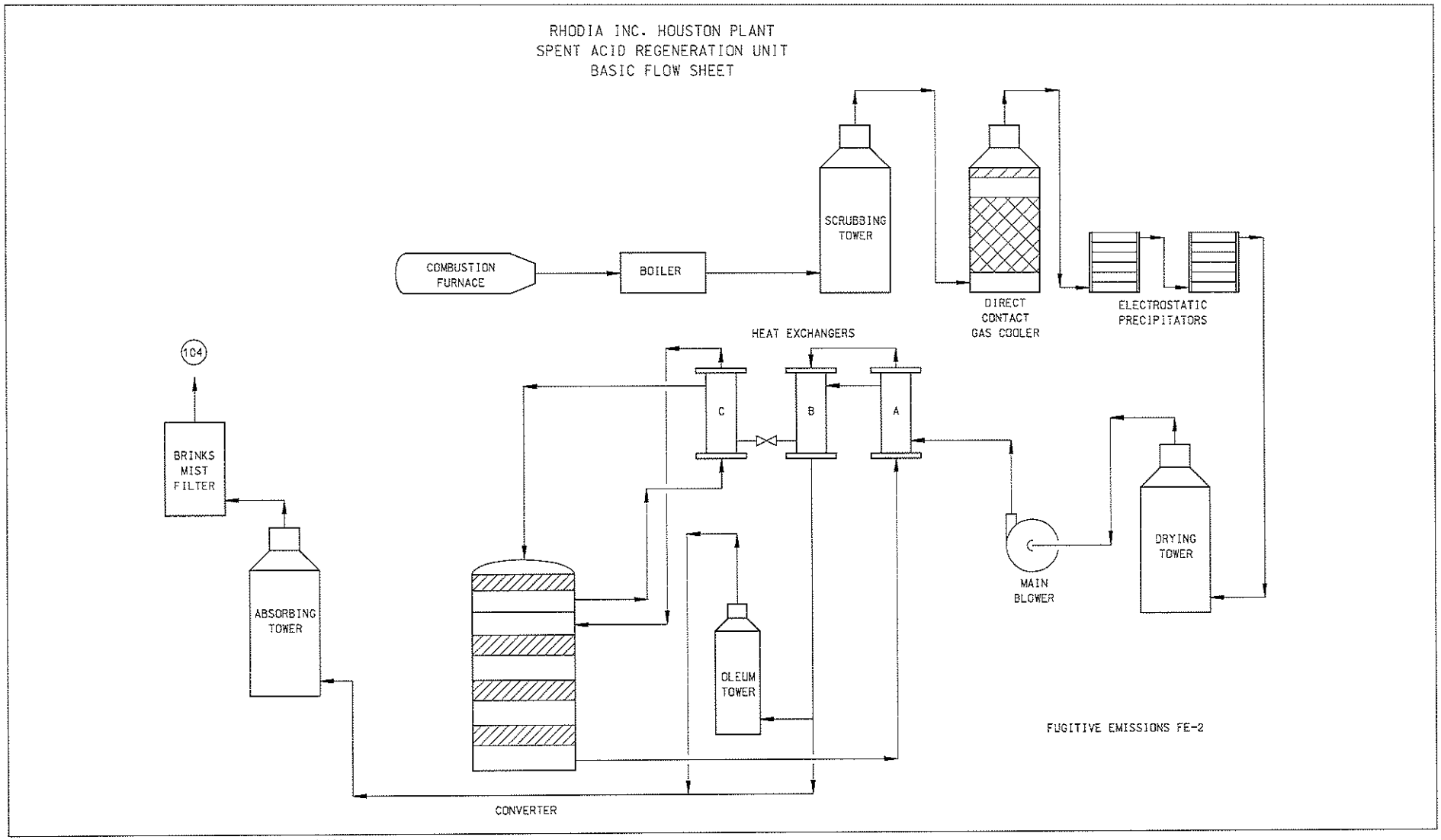
Rhodia

ECO SERVICES ENTERPRISES
HOUSTON, TEXAS PLANT

26 FEBRUARY 2010

RHODIA INC. HOUSTON PLANT
SULFUR BURNING UNIT NO. 8
BASIC FLOW SHEET WITH SO_2 ABATEMENT
(FEBRUARY 2010)





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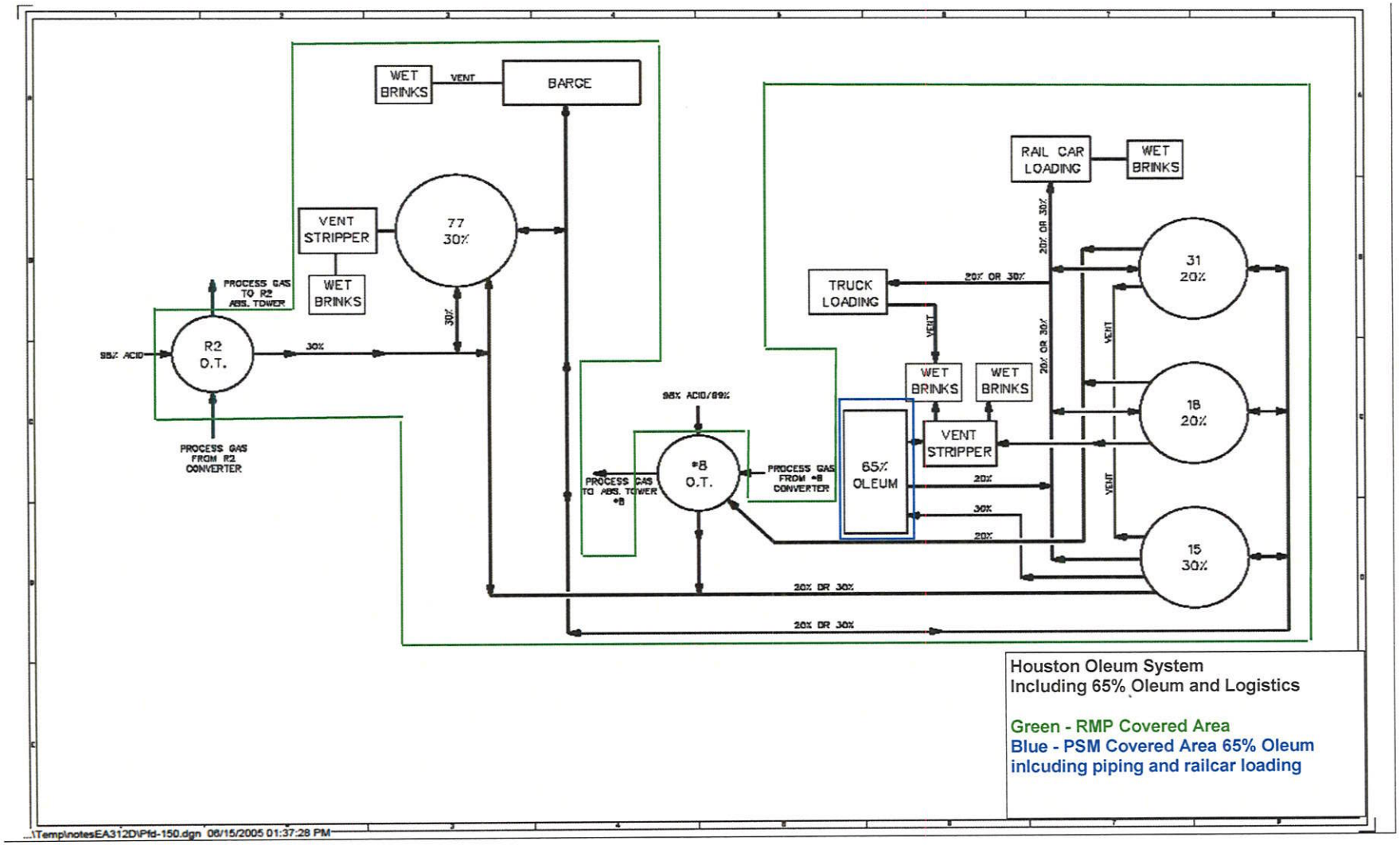
WET BRINKS
VENT
BARGE
RAIL CAR LOADING
WET BRINKS
VENT STRIPPER
77 30%
PROCESS GAS TO R2 ABS. TOWER
WET BRINKS
98% ACID
R2 O.T.
30%
PROCESS GAS FROM R2 CONVERTER
TRUCK LOADING
20% OR 30%
VENT
WET BRINKS
WET BRINKS
VENT STRIPPER
98% ACID/99%
PROCESS GAS TO ABS. TOWER #8
#8 O.T.
PROCESS GAS FROM #8 CONVERTER
65% OLEUM
20%
30%
20%
31 20%
18 20%
15 30%
20% OR 30%
20% OR 30%
Houston Oleum System
Including 65% Oleum and Logistics
Green - RMP Covered Area
Blue - PSM Covered Area 65% Oleum
inlcuding piping and railcar loading
...\Temp\notesEA312D\Pfd-150.dgn 06/15/2005 01:37:28 PM

Section III – ATTACHMENTS

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6. Compliance Audits
7. Exit Briefing Sign-In Sheet
8. Hot Work Permits
9. Process Chemistry (CBI) and Maximum Intended Inventory (CBI)

Section 1. Registration Information

Source Identification

Facility Name:	Rhodia, Houston Plant
Parent Company #1 Name:	Rhodia Inc.
Parent Company #2 Name:	

Submission and Acceptance

Submission Type:	Re-submission
Subsequent RMP Submission Reason:	Newly regulated substance above TQ in already covered process (40 CFR 68.190(b)(3))
Description:	
Receipt Date:	08-Nov-2012
Postmark Date:	08-Nov-2012
Next Due Date:	08-Nov-2017
Completeness Check Date:	08-Nov-2012
Complete RMP:	Yes
De-Registration / Closed Reason:	
De-Registration / Closed Reason Other Text:	
De-Registered / Closed Date:	
De-Registered / Closed Effective Date:	
Certification Received:	Yes

Facility Identification

EPA Facility Identifier:	1000 0008 2983
Other EPA Systems Facility ID:	77012STFFR8615M

Dun and Bradstreet Numbers (DUNS)

Facility DUNS:	
Parent Company #1 DUNS:	
Parent Company #2 DUNS:	

Facility Location Address

Street 1:	8615 Manchester Street
Street 2:	
City:	Houston
State:	TEXAS
ZIP:	77012
ZIP4:	
County:	HARRIS

Facility Latitude and Longitude

Latitude (decimal):	29.718139
Longitude (decimal):	-095.268750
Lat/Long Method:	Interpolation - Digital map source (TIGER)
Lat/Long Description:	Facility Centroid
Horizontal Accuracy Measure:	10
Horizontal Reference Datum Name:	World Geodetic System of 1984
Source Map Scale Number:	

Owner or Operator

Operator Name:	Rhodia Inc.
Operator Phone:	(609) 860-4000

Mailing Address

Operator Street 1:	8 Cedar Brook Drive
Operator Street 2:	
Operator City:	Cranbury
Operator State:	NEW JERSEY
Operator ZIP:	08512
Operator ZIP4:	7500
Operator Foreign State or Province:	
Operator Foreign ZIP:	
Operator Foreign Country:	

Name and title of person or position responsible for Part 68 (RMP) Implementation

RMP Name of Person:	William McConnell
RMP Title of Person or Position:	Plant Manager
RMP E-mail Address:	william.mcconnell@us.rhodia.com

Emergency Contact

Emergency Contact Name:	William McConnell
Emergency Contact Title:	Plant Manager
Emergency Contact Phone:	(713) 924-1401
Emergency Contact 24-Hour Phone:	(713) 928-3411
Emergency Contact Ext. or PIN:	
Emergency Contact E-mail Address:	william.mcconnell@us.rhodia.com

Other Points of Contact

Facility or Parent Company E-mail Address:	
Facility Public Contact Phone:	
Facility or Parent Company WWW Homepage Address:	

Local Emergency Planning Committee

LEPC:	Houston LEPC

Full Time Equivalent Employees

Number of Full Time Employees (FTE) on Site:	140
FTE Claimed as CBI:	

Covered By

OSHA PSM :	Yes
EPCRA 302 :	Yes
CAA Title V:	Yes

Air Operating Permit ID:	O-3049

OSHA Ranking

OSHA Star or Merit Ranking:	

Last Safety Inspection

Last Safety Inspection (By an External Agency) Date:	27-Aug-2008
Last Safety Inspection Performed By an External Agency:	EPA

Predictive Filing

Did this RMP involve predictive filing?:	Yes

Preparer Information

Preparer Name:	
Preparer Phone:	
Preparer Street 1:	
Preparer Street 2:	
Preparer City:	
Preparer State:	
Preparer ZIP:	
Preparer ZIP4:	
Preparer Foreign State:	
Preparer Foreign Country:	
Preparer Foreign ZIP:	

Confidential Business Information (CBI)

CBI Claimed:	
Substantiation Provided:	
Unsanitized RMP Provided:	

Reportable Accidents

Reportable Accidents:	See Section 6. Accident History below to determine if there were any accidents reported for this RMP.

Process Chemicals

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046376
Program Level:	Program Level 3 process
Chemical Name:	Acetaldehyde
CAS Number:	75-07-0
Quantity (lbs):	37500
CBI Claimed:	
Flammable/Toxic:	Flammable

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046371
Program Level:	Program Level 3 process
Chemical Name:	Vinyl acetate monomer [Acetic acid ethenyl ester]
CAS Number:	108-05-4
Quantity (lbs):	384000
CBI Claimed:	
Flammable/Toxic:	Toxic

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046372
Program Level:	Program Level 3 process
Chemical Name:	Toluene diisocyanate (unspecified isomer) [Benzene, 1,3-diisocyanatomethyl-]
CAS Number:	26471-62-5
Quantity (lbs):	120000
CBI Claimed:	
Flammable/Toxic:	Toxic

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046375
Program Level:	Program Level 3 process
Chemical Name:	Allyl alcohol [2-Propen-1-ol]
CAS Number:	107-18-6
Quantity (lbs):	80000
CBI Claimed:	
Flammable/Toxic:	Toxic

Process ID:	1000038617
Description:	Regen 2 Unit
Process Chemical ID:	1000046365
Program Level:	Program Level 3 process
Chemical Name:	Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide]
CAS Number:	8014-95-7
Quantity (lbs):	249000
CBI Claimed:	
Flammable/Toxic:	Toxic

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046374
Program Level:	Program Level 3 process
Chemical Name:	Ethyl mercaptan [Ethanethiol]

CAS Number:	75-08-1
Quantity (lbs):	41000
CBI Claimed:	
Flammable/Toxic:	Flammable

Process ID:	1000038618
Description:	No. 8 Unit
Process Chemical ID:	1000046366
Program Level:	Program Level 3 process
Chemical Name:	Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide]
CAS Number:	8014-95-7
Quantity (lbs):	218000
CBI Claimed:	
Flammable/Toxic:	Toxic

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046370
Program Level:	Program Level 3 process
Chemical Name:	Dimethylamine [Methanamine, N-methyl-]
CAS Number:	124-40-3
Quantity (lbs):	80000
CBI Claimed:	
Flammable/Toxic:	Flammable

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046373
Program Level:	Program Level 3 process
Chemical Name:	Methyl mercaptan [Methanethiol]
CAS Number:	74-93-1
Quantity (lbs):	95000
CBI Claimed:	
Flammable/Toxic:	Toxic

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046379
Program Level:	Program Level 3 process
Chemical Name:	Acrylonitrile [2-Propenenitrile]
CAS Number:	107-13-1
Quantity (lbs):	68000
CBI Claimed:	
Flammable/Toxic:	Toxic

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046383
Program Level:	Program Level 3 process
Chemical Name:	Flammable Mixture
CAS Number:	00-11-11
Quantity (lbs):	540000
CBI Claimed:	
Flammable/Toxic:	Flammable

Flammable Mixture Chemical Components

Flammable Mixture Chemical ID:	1000038960
Chemical Name:	Ethyl chloride [Ethane, chloro-]
CAS Number:	75-00-3
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000038962
Chemical Name:	Ethyl mercaptan [Ethanethiol]
CAS Number:	75-08-1
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000038957
Chemical Name:	2-Butene-cis
CAS Number:	590-18-1
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000038965
Chemical Name:	1-Butene
CAS Number:	106-98-9
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000038961
Chemical Name:	Propylene [1-Propene]
CAS Number:	115-07-1
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000038959
Chemical Name:	2-Methylpropene [1-Propene, 2-methyl-]
CAS Number:	115-11-7
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000038964
Chemical Name:	Isopentane [Butane, 2-methyl-]
CAS Number:	78-78-4
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000038958
Chemical Name:	2-Butene-trans [2-Butene, (E)]
CAS Number:	624-64-6
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000038963
Chemical Name:	1,3-Butadiene
CAS Number:	106-99-0
Flammable/Toxic:	Flammable

Process ID:	1000038615
Description:	TXUP, Sulfur Trioxide
Process Chemical ID:	1000046363
Program Level:	Program Level 3 process
Chemical Name:	Sulfur trioxide
CAS Number:	7446-11-9
Quantity (lbs):	27505
CBI Claimed:	
Flammable/Toxic:	Toxic

Process ID:	1000038619
Description:	Logistics
Process Chemical ID:	1000046367
Program Level:	Program Level 3 process
Chemical Name:	Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide]
CAS Number:	8014-95-7
Quantity (lbs):	39134000
CBI Claimed:	
Flammable/Toxic:	Toxic

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046378
Program Level:	Program Level 3 process
Chemical Name:	Hydrogen sulfide
CAS Number:	7783-06-4
Quantity (lbs):	46200
CBI Claimed:	
Flammable/Toxic:	Toxic

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046384
Program Level:	Program Level 3 process
Chemical Name:	Flammable Mixture
CAS Number:	00-11-11
Quantity (lbs):	90000
CBI Claimed:	
Flammable/Toxic:	Flammable

Flammable Mixture Chemical Components

Flammable Mixture Chemical ID:	1000038968
Chemical Name:	Isopropylamine [2-Propanamine]
CAS Number:	75-31-0
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	1000038967
Chemical Name:	Ethylamine [Ethanamine]
CAS Number:	75-04-7
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000038969
Chemical Name:	Methylamine [Methanamine]
CAS Number:	74-89-5
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000038970
Chemical Name:	Trimethylamine [Methanamine, N,N-dimethyl-]
CAS Number:	75-50-3
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000038966
Chemical Name:	Dimethylamine [Methanamine, N-methyl-]
CAS Number:	124-40-3
Flammable/Toxic:	Flammable

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046368
Program Level:	Program Level 3 process
Chemical Name:	Propionitrile [Propanenitrile]
CAS Number:	107-12-0
Quantity (lbs):	362000
CBI Claimed:	
Flammable/Toxic:	Toxic

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046369
Program Level:	Program Level 3 process
Chemical Name:	Carbon disulfide
CAS Number:	75-15-0
Quantity (lbs):	230000
CBI Claimed:	
Flammable/Toxic:	Toxic

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046377
Program Level:	Program Level 3 process
Chemical Name:	Hydrazine
CAS Number:	302-01-2
Quantity (lbs):	23000
CBI Claimed:	
Flammable/Toxic:	Toxic

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046381
Program Level:	Program Level 3 process
Chemical Name:	Propylene oxide [Oxirane, methyl-]
CAS Number:	75-56-9
Quantity (lbs):	45000
CBI Claimed:	
Flammable/Toxic:	Toxic

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046380
Program Level:	Program Level 3 process
Chemical Name:	Isopropylamine [2-Propanamine]
CAS Number:	75-31-0
Quantity (lbs):	345000
CBI Claimed:	
Flammable/Toxic:	Flammable

Process ID:	1000038620
Description:	Hazardous Waste Treatment
Process Chemical ID:	1000046382
Program Level:	Program Level 3 process
Chemical Name:	Flammable Mixture
CAS Number:	00-11-11
Quantity (lbs):	460000
CBI Claimed:	
Flammable/Toxic:	Flammable

Flammable Mixture Chemical Components

Flammable Mixture Chemical ID:	1000038956
Chemical Name:	Propylene [1-Propene]
CAS Number:	115-07-1
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	1000038954
Chemical Name:	1-Butene
CAS Number:	106-98-9
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	1000038955
Chemical Name:	Propane
CAS Number:	74-98-6
Flammable/Toxic:	Flammable

Process NAICS

Process ID:	1000038615
Process NAICS ID:	1000038957
Program Level:	Program Level 3 process
NAICS Code:	325998
NAICS Description:	All Other Miscellaneous Chemical Product and Preparation Manufacturing

Process ID:	1000038617
Process NAICS ID:	1000038959
Program Level:	Program Level 3 process
NAICS Code:	325188
NAICS Description:	All Other Basic Inorganic Chemical Manufacturing

Process ID:	1000038618
Process NAICS ID:	1000038960
Program Level:	Program Level 3 process
NAICS Code:	325188
NAICS Description:	All Other Basic Inorganic Chemical Manufacturing

Process ID:	1000038619
Process NAICS ID:	1000038961
Program Level:	Program Level 3 process
NAICS Code:	325188
NAICS Description:	All Other Basic Inorganic Chemical Manufacturing

Process ID:	1000038620
Process NAICS ID:	1000038962
Program Level:	Program Level 3 process
NAICS Code:	325188
NAICS Description:	All Other Basic Inorganic Chemical Manufacturing

Section 2. Toxics: Worst Case

Toxic Worst ID: 1000031857

Percent Weight:	30.0
Physical State:	Liquid
Model Used:	EPA's OCA Guidance Reference Tables or Equations
Release Duration (mins):	10
Wind Speed (m/sec):	1.5
Atmospheric Stability Class:	F
Topography:	Urban

Passive Mitigation Considered

Dikes:	
Enclosures:	
Berms:	
Drains:	
Sumps:	
Other Type:	Dock taken as partial secondary containment

Section 3. Toxics: Alternative Release

Toxic Alter ID: 1000033746

Percent Weight:	100.0
Physical State:	Liquid
Model Used:	EPA's RMP*Comp(TM)
Wind Speed (m/sec):	3.0
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	
Enclosures:	Yes
Berms:	
Drains:	
Sumps:	
Other Type:	

Active Mitigation Considered

Sprinkler System:	
Deluge System:	
Water Curtain:	
Neutralization:	
Excess Flow Valve:	
Flares:	
Scrubbers:	Yes
Emergency Shutdown:	Yes
Other Type:	

Toxic Alter ID: 1000033748

Percent Weight:	
Physical State:	Liquid
Model Used:	EPA's RMP*Comp(TM)
Wind Speed (m/sec):	3.0
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	Yes
Enclosures:	
Berms:	
Drains:	
Sumps:	Yes
Other Type:	

Active Mitigation Considered

Sprinkler System:	Yes
Deluge System:	
Water Curtain:	
Neutralization:	
Excess Flow Valve:	
Flares:	
Scrubbers:	

Emergency Shutdown:	Yes
Other Type:	

Toxic Alter ID: 1000033749

Percent Weight:	50.0
Physical State:	Liquid
Model Used:	EPA's RMP*Comp(TM)
Wind Speed (m/sec):	3.0
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	Yes
Enclosures:	
Berms:	
Drains:	
Sumps:	Yes
Other Type:	

Active Mitigation Considered

Sprinkler System:	Yes
Deluge System:	
Water Curtain:	
Neutralization:	
Excess Flow Valve:	
Flares:	
Scrubbers:	
Emergency Shutdown:	Yes
Other Type:	

Toxic Alter ID: 1000033750

Percent Weight:	
Physical State:	Liquid
Model Used:	EPA's RMP*Comp(TM)
Wind Speed (m/sec):	3.0
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	Yes
Enclosures:	
Berms:	
Drains:	
Sumps:	Yes
Other Type:	

Active Mitigation Considered

Sprinkler System:	Yes
Deluge System:	
Water Curtain:	
Neutralization:	
Excess Flow Valve:	
Flares:	

Scrubbers:	
Emergency Shutdown:	Yes
Other Type:	

Toxic Alter ID: 1000033751

Percent Weight:	30.0
Physical State:	Liquid
Model Used:	EPA's RMP*Comp(TM)
Wind Speed (m/sec):	3.0
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	Yes
Enclosures:	
Berms:	
Drains:	
Sumps:	Yes
Other Type:	

Active Mitigation Considered

Sprinkler System:	Yes
Deluge System:	
Water Curtain:	
Neutralization:	
Excess Flow Valve:	
Flares:	
Scrubbers:	
Emergency Shutdown:	Yes
Other Type:	

Toxic Alter ID: 1000033752

Percent Weight:	10.0
Physical State:	Liquid
Model Used:	EPA's RMP*Comp(TM)
Wind Speed (m/sec):	3.0
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	Yes
Enclosures:	
Berms:	
Drains:	
Sumps:	Yes
Other Type:	

Active Mitigation Considered

Sprinkler System:	Yes
Deluge System:	
Water Curtain:	
Neutralization:	
Excess Flow Valve:	

Flares:	
Scrubbers:	
Emergency Shutdown:	Yes
Other Type:	

Toxic Alter ID: 1000033753

Percent Weight:	80.0
Physical State:	Liquid
Model Used:	EPA's RMP*Comp(TM)
Wind Speed (m/sec):	3.0
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	Yes
Enclosures:	
Berms:	
Drains:	
Sumps:	Yes
Other Type:	

Active Mitigation Considered

Sprinkler System:	Yes
Deluge System:	
Water Curtain:	
Neutralization:	
Excess Flow Valve:	
Flares:	
Scrubbers:	
Emergency Shutdown:	Yes
Other Type:	

Toxic Alter ID: 1000033754

Percent Weight:	
Physical State:	Liquid
Model Used:	EPA's RMP*Comp(TM)
Wind Speed (m/sec):	3.0
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	Yes
Enclosures:	
Berms:	
Drains:	
Sumps:	Yes
Other Type:	

Active Mitigation Considered

Sprinkler System:	Yes
Deluge System:	
Water Curtain:	
Neutralization:	

Excess Flow Valve:	
Flares:	
Scrubbers:	
Emergency Shutdown:	Yes
Other Type:	

Toxic Alter ID: 1000033755

Percent Weight:	6.0
Physical State:	Liquid
Model Used:	EPA's RMP*Comp(TM)
Wind Speed (m/sec):	3.0
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	Yes
Enclosures:	
Berms:	
Drains:	
Sumps:	Yes
Other Type:	

Active Mitigation Considered

Sprinkler System:	Yes
Deluge System:	
Water Curtain:	
Neutralization:	
Excess Flow Valve:	
Flares:	
Scrubbers:	
Emergency Shutdown:	Yes
Other Type:	

Toxic Alter ID: 1000033756

Percent Weight:	
Physical State:	Liquid
Model Used:	EPA's RMP*Comp(TM)
Wind Speed (m/sec):	3.0
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	Yes
Enclosures:	
Berms:	
Drains:	
Sumps:	Yes
Other Type:	

Active Mitigation Considered

Sprinkler System:	Yes
Deluge System:	
Water Curtain:	

Neutralization:	
Excess Flow Valve:	
Flares:	
Scrubbers:	
Emergency Shutdown:	Yes
Other Type:	

Toxic Alter ID: 1000033757

Percent Weight:	25.0
Physical State:	Liquid
Model Used:	EPA's RMP*Comp(TM)
Wind Speed (m/sec):	3.0
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	Yes
Enclosures:	
Berms:	
Drains:	
Sumps:	Yes
Other Type:	

Active Mitigation Considered

Sprinkler System:	Yes
Deluge System:	
Water Curtain:	
Neutralization:	
Excess Flow Valve:	
Flares:	
Scrubbers:	
Emergency Shutdown:	Yes
Other Type:	

Toxic Alter ID: 1000033763

Percent Weight:	30.0
Physical State:	Liquid
Model Used:	Areal Locations of Hazardous Atmospheres [ALOHA(R)]
Wind Speed (m/sec):	3.0
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	
Enclosures:	
Berms:	
Drains:	
Sumps:	Yes
Other Type:	

Active Mitigation Considered

Sprinkler System:	

Deluge System:	
Water Curtain:	
Neutralization:	Yes
Excess Flow Valve:	
Flares:	
Scrubbers:	
Emergency Shutdown:	Yes
Other Type:	

Toxic Alter ID: 1000033764

Percent Weight:	30.0
Physical State:	Liquid
Model Used:	EPA's RMP*Comp(TM)
Wind Speed (m/sec):	3.0
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	
Enclosures:	
Berms:	
Drains:	
Sumps:	Yes
Other Type:	

Active Mitigation Considered

Sprinkler System:	
Deluge System:	
Water Curtain:	
Neutralization:	Yes
Excess Flow Valve:	
Flares:	
Scrubbers:	
Emergency Shutdown:	
Other Type:	

Toxic Alter ID: 1000033765

Percent Weight:	30.0
Physical State:	Liquid
Model Used:	EPA's RMP*Comp(TM)
Wind Speed (m/sec):	3.0
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	
Enclosures:	
Berms:	
Drains:	
Sumps:	Yes
Other Type:	

Active Mitigation Considered

Sprinkler System:	
Deluge System:	
Water Curtain:	
Neutralization:	Yes
Excess Flow Valve:	
Flares:	
Scrubbers:	
Emergency Shutdown:	
Other Type:	

Section 4. Flammables: Worst Case

Flammable Worst ID: 1000023871

Model Used:	EPA's RMP*Comp(TM)
Endpoint used:	1 PSI

Passive Mitigation Considered

Blast Walls:	
Other Type:	

Section 5. Flammables: Alternative Release

Flammable Alter ID: 1000022331

Model Used:	EPA's RMP*Comp(TM)

Passive Mitigation Considered

Dikes:	Yes
Fire Walls:	
Blast Walls:	
Enclosures:	
Other Type:	

Active Mitigation Considered

Sprinkler System:	Yes
Deluge System:	
Water Curtain:	
Excess Flow Valve:	
Other Type:	

Section 6. Accident History

Accident History ID: 1000025979

Date of Accident:	09-Jun-2012
Time Accident Began (HHMM):	1111
NAICS Code of Process Involved:	325188
NAICS Description:	All Other Basic Inorganic Chemical Manufacturing
Release Duration:	000 Hours 09 Minutes

Release Event

Gas Release:	Yes
Liquid Spill/Evaporation:	Yes
Fire:	
Explosion:	
Uncontrolled/Runaway Reaction:	

Release Source

Storage Vessel:	
Piping:	Yes
Process Vessel:	
Transfer Hose:	
Valve:	
Pump:	
Joint:	
Other Release Source:	

Weather Conditions at the Time of Event

Wind Speed:	8.4
Units:	miles/h
Direction:	NE
Temperature:	88
Atmospheric Stability Class:	D
Precipitation Present:	
Unknown Weather Conditions:	

On-Site Impacts

Employee or Contractor Deaths:	0
Public Responder Deaths:	0
Public Deaths:	0
Employee or Contractor Injuries:	0
Public Responder Injuries:	0
Public Injuries:	0
On-Site Property Damage ($):	0

Known Off-Site Impacts

Deaths:	0
Hospitalization:	0
Other Medical Treatments:	0
Evacuated:	0

Sheltered-in-Place:	8
Off-Site Property Damage ($):	0

Environmental Damage

Fish or Animal Kills:	
Tree, Lawn, Shrub, or Crop Damage:	
Water Contamination:	
Soil Contamination:	
Other Environmental Damage:	

Initiating Event

Initiating Event:	Equipment Failure

Contributing Factors

Equipment Failure:	Yes
Human Error:	
Improper Procedures:	
Overpressurization:	
Upset Condition:	
By-Pass Condition:	
Maintenance Activity/Inactivity:	
Process Design Failure:	
Unsuitable Equipment:	
Unusual Weather Condition:	
Management Error:	
Other Contributing Factor:	

Off-Site Responders Notified

Off-Site Responders Notified:	Notified and Responded

Changes Introduced as a Result of the Accident

Improved or Upgraded Equipment:	Yes
Revised Maintenance:	Yes
Revised Training:	
Revised Operating Procedures:	
New Process Controls:	
New Mitigation Systems:	
Revised Emergency Response Plan:	
Changed Process:	
Reduced Inventory:	
None:	
Other Changes Introduced:	

Confidential Business Information

CBI Claimed:	

Chemicals in Accident History

Accident Chemical ID:	1000020230
Quantity Released (lbs):	868
Percent Weight:	30.0
Chemical Name:	Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide]
CAS Number:	8014-95-7
Flammable/Toxic:	Toxic

Accident History ID: 1000025978

Date of Accident:	29-Nov-2008
Time Accident Began (HHMM):	0305
NAICS Code of Process Involved:	325188
NAICS Description:	All Other Basic Inorganic Chemical Manufacturing
Release Duration:	002 Hours 42 Minutes

Release Event

Gas Release:	Yes
Liquid Spill/Evaporation:	Yes
Fire:	
Explosion:	
Uncontrolled/Runaway Reaction:	

Release Source

Storage Vessel:	
Piping:	
Process Vessel:	Yes
Transfer Hose:	
Valve:	
Pump:	
Joint:	
Other Release Source:	

Weather Conditions at the Time of Event

Wind Speed:	15.0
Units:	miles/h
Direction:	NW
Temperature:	62
Atmospheric Stability Class:	D
Precipitation Present:	
Unknown Weather Conditions:	

On-Site Impacts

Employee or Contractor Deaths:	0
Public Responder Deaths:	0
Public Deaths:	0
Employee or Contractor Injuries:	0
Public Responder Injuries:	0
Public Injuries:	0
On-Site Property Damage ($):	0

Known Off-Site Impacts

Deaths:	0
Hospitalization:	0
Other Medical Treatments:	0
Evacuated:	0
Sheltered-in-Place:	0
Off-Site Property Damage ($):	0

Environmental Damage

Fish or Animal Kills:	
Tree, Lawn, Shrub, or Crop Damage:	
Water Contamination:	
Soil Contamination:	
Other Environmental Damage:	

Initiating Event

Initiating Event:	Equipment Failure

Contributing Factors

Equipment Failure:	Yes
Human Error:	
Improper Procedures:	
Overpressurization:	
Upset Condition:	
By-Pass Condition:	
Maintenance Activity/Inactivity:	
Process Design Failure:	
Unsuitable Equipment:	
Unusual Weather Condition:	
Management Error:	
Other Contributing Factor:	

Off-Site Responders Notified

Off-Site Responders Notified:	Notified and Responded

Changes Introduced as a Result of the Accident

Improved or Upgraded Equipment:	
Revised Maintenance:	Yes
Revised Training:	
Revised Operating Procedures:	
New Process Controls:	
New Mitigation Systems:	
Revised Emergency Response Plan:	Yes
Changed Process:	
Reduced Inventory:	
None:	
Other Changes Introduced:	

Confidential Business Information

CBI Claimed:

Chemicals in Accident History

Accident Chemical ID:	1000020229
Quantity Released (lbs):	203
Percent Weight:	20.0
Chemical Name:	Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide]
CAS Number:	8014-95-7
Flammable/Toxic:	Toxic

Section 7. Program Level 3

Description

TXUP Unit - Sulfur Trioxide

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000039875
Chemical Name:	Sulfur trioxide
Flammable/Toxic:	Toxic
CAS Number:	7446-11-9
Prevention Program Level 3 ID:	1000033687
NAICS Code:	325998

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	13-Mar-2012

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	28-Mar-2009

The Technique Used

What If:	Yes
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	LOPA
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	27-May-2009

Major Hazards Identified

Toxic Release:	Yes
Fire:	
Explosion:	
Runaway Reaction:	
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	Yes
Contamination:	Yes
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	Yes
Earthquake:	
Floods (Flood Plain):	

Tornado:	Yes
Hurricanes:	Yes
Other Major Hazard Identified:	

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	Yes
Flares:	
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	Yes
Emergency Air Supply:	Yes
Emergency Power:	Yes
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	
Rupture Disks:	Yes
Excess Flow Device:	
Quench System:	
Purge System:	
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	
Water Curtain:	
Enclosure:	Yes
Neutralization:	
None:	
Other Mitigation System in Use:	Building Vent Scrubber

Monitoring/Detection Systems in Use

Process Area Detectors:	Yes
Perimeter Monitors:	
None:	
Other Monitoring/Detection System in Use:	

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	
Installation of Process Controls:	Yes
Installation of Process Detection Systems:	

Installation of Perimeter Monitoring Systems:

Installation of Mitigation Systems:

None Recommended:

None:

Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	08-Nov-2012

Training

Training Revision Date (The date of the most recent review or revision of training programs):	05-Nov-2012

The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	

The Type of Competency Testing Used

Written Tests:	Yes
Oral Tests:	Yes
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures):	21-Sep-2012
Equipment Inspection Date (The date of the most recent equipment inspection or test):	08-Oct-2012
Equipment Tested (Equipment most recently inspected or tested):	SO3 Evaporator

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures):	02-Oct-2012
Change Management Revision Date (The date of the most recent review or revision of management of change procedures):	17-Apr-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review):	18-Oct-2012

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit):	31-Dec-2013
Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit):	03-Sep-2012

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):	25-Apr-2012
Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):	25-Apr-2012

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans):	13-Apr-2012

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures):	23-Oct-2012

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures):	06-Sep-2012
Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance):	31-Oct-2012

Confidential Business Information

CBI Claimed:

Description

Regen 2 Unit - Oleum

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000039877

Chemical Name:	Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide]
Flammable/Toxic:	Toxic
CAS Number:	8014-95-7
Prevention Program Level 3 ID:	1000033689
NAICS Code:	325188

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	01-Mar-2012

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	06-Jan-2009

The Technique Used

What If:	
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	LOPA
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	31-May-2013

Major Hazards Identified

Toxic Release:	Yes
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	Yes
Contamination:	Yes
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	Yes
Earthquake:	
Floods (Flood Plain):	
Tornado:	
Hurricanes:	Yes
Other Major Hazard Identified:	

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	

Scrubbers:	Yes
Flares:	
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	Yes
Emergency Air Supply:	Yes
Emergency Power:	Yes
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	
Rupture Disks:	Yes
Excess Flow Device:	
Quench System:	
Purge System:	
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	
Water Curtain:	
Enclosure:	
Neutralization:	Yes
None:	
Other Mitigation System in Use:	Trench System

Monitoring/Detection Systems in Use

Process Area Detectors:	
Perimeter Monitors:	Yes
None:	
Other Monitoring/Detection System in Use:	

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	
Installation of Process Controls:	
Installation of Process Detection Systems:	
Installation of Perimeter Monitoring Systems:	
Installation of Mitigation Systems:	
None Recommended:	
None:	Yes
Other Changes Since Last PHA or PHA Update:	

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	08-Nov-2012

Training

Training Revision Date (The date of the most recent review or revision of training programs):	04-Sep-2012

The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	

The Type of Competency Testing Used

Written Tests:	
Oral Tests:	
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures):	27-Jan-2012
Equipment Inspection Date (The date of the most recent equipment inspection or test):	15-Feb-2012
Equipment Tested (Equipment most recently inspected or tested):	Oleum Tower Internal Inspection

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures):	12-Jun-2012
Change Management Revision Date (The date of the most recent review or revision of management of change procedures):	17-Apr-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review):	17-Jan-2011

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit):	31-Dec-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit):	03-Sep-2012

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):	01-Apr-2011
Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):	01-Apr-2011

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans):	13-Apr-2012

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures):	23-Oct-2012

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures):	06-Sep-2012
Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance):	31-Oct-2012

Confidential Business Information

CBI Claimed:

Description

No. 8 Unit - Oleum

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000039879
Chemical Name:	Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide]
Flammable/Toxic:	Toxic
CAS Number:	8014-95-7
Prevention Program Level 3 ID:	1000033690
NAICS Code:	325188

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	30-Mar-2012

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	19-May-2011

The Technique Used

What If:	
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	LOPA
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	05-Sep-2012

Major Hazards Identified

Toxic Release:	Yes
Fire:	Yes
Explosion:	
Runaway Reaction:	
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	Yes
Contamination:	Yes
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	
Earthquake:	
Floods (Flood Plain):	
Tornado:	
Hurricanes:	Yes
Other Major Hazard Identified:	

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	Yes
Flares:	
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	
Emergency Air Supply:	

Emergency Power:	
Backup Pump:	
Grounding Equipment:	Yes
Inhibitor Addition:	
Rupture Disks:	
Excess Flow Device:	
Quench System:	
Purge System:	
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	
Water Curtain:	
Enclosure:	
Neutralization:	Yes
None:	
Other Mitigation System in Use:	

Monitoring/Detection Systems in Use

Process Area Detectors:	
Perimeter Monitors:	
None:	Yes
Other Monitoring/Detection System in Use:	

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	
Installation of Process Controls:	
Installation of Process Detection Systems:	
Installation of Perimeter Monitoring Systems:	
Installation of Mitigation Systems:	
None Recommended:	
None:	
Other Changes Since Last PHA or PHA Update:	Replaced oleum tower 10/15/12

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	08-Nov-2012

Training

Training Revision Date (The date of the most recent review or revision of training programs):	05-Nov-2012

The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	

The Type of Competency Testing Used

Written Tests:	Yes
Oral Tests:	Yes
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures):	27-Sep-2012
Equipment Inspection Date (The date of the most recent equipment inspection or test):	29-Oct-2012
Equipment Tested (Equipment most recently inspected or tested):	Oleum CIL exchanger

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures):	12-Oct-2012
Change Management Revision Date (The date of the most recent review or revision of management of change procedures):	17-Apr-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review):	11-Oct-2012

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit):	31-Dec-2013
Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit):	03-Sep-2012

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):	04-Jun-2012
Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):	31-Dec-2013

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans):	13-Apr-2012

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures):	23-Oct-2012

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures):	06-Apr-2012
Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance):	31-Oct-2012

Confidential Business Information

CBI Claimed:

Description

Logisitics - Oleum

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000039880
Chemical Name:	Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide]
Flammable/Toxic:	Toxic
CAS Number:	8014-95-7
Prevention Program Level 3 ID:	1000033691
NAICS Code:	325188

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	02-May-2012

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	03-Mar-2011

The Technique Used

What If:	
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	LOPA
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	03-Mar-2014

Major Hazards Identified

Toxic Release:	Yes
Fire:	
Explosion:	
Runaway Reaction:	
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	Yes
Contamination:	Yes
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	
Earthquake:	
Floods (Flood Plain):	
Tornado:	
Hurricanes:	Yes
Other Major Hazard Identified:	

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	Yes
Flares:	
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	
Emergency Air Supply:	Yes
Emergency Power:	
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	
Rupture Disks:	Yes
Excess Flow Device:	
Quench System:	

Purge System:
None:
Other Process Control in Use:

Mitigation Systems in Use

Sprinkler System:	
Dikes:	Yes
Fire Walls:	
Blast Walls:	
Deluge System:	
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	

Monitoring/Detection Systems in Use

Process Area Detectors:	
Perimeter Monitors:	
None:	Yes
Other Monitoring/Detection System in Use:	

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	Yes
Change Process Parameters:	
Installation of Process Controls:	
Installation of Process Detection Systems:	
Installation of Perimeter Monitoring Systems:	
Installation of Mitigation Systems:	
None Recommended:	
None:	
Other Changes Since Last PHA or PHA Update:	

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	17-Oct-2012

Training

Training Revision Date (The date of the most recent review or revision of training programs):	03-Jan-2011

The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	

The Type of Competency Testing Used

Written Tests:	Yes
Oral Tests:	Yes
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures):	20-Apr-2012
Equipment Inspection Date (The date of the most recent equipment inspection or test):	20-Sep-2012
Equipment Tested (Equipment most recently inspected or tested):	Oleum Tank 15 pump

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures):	06-Sep-2012
Change Management Revision Date (The date of the most recent review or revision of management of change procedures):	17-Apr-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review):	06-Sep-2012

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit):	31-Dec-2013
Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit):	03-Sep-2012

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):	11-Oct-2012
Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):	29-Mar-2013

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans):	13-Apr-2012

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures):	23-Oct-2012

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures):	06-Sep-2012
Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance):	26-Sep-2012

Confidential Business Information

CBI Claimed:

Description

Hazardous Waste Treatment Services - Multiple Chemicals

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000039885
Chemical Name:	Propionitrile [Propanenitrile]
Flammable/Toxic:	Toxic
CAS Number:	107-12-0
Prevention Program Level 3 ID:	1000033692
NAICS Code:	325188

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	01-Nov-2012

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	18-Oct-2010

The Technique Used

What If:
Checklist:

What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	LOPA
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	29-Mar-2013

Major Hazards Identified

Toxic Release:	Yes
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	Yes
Polymerization:	Yes
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	Yes
Contamination:	Yes
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	Yes
Earthquake:	
Floods (Flood Plain):	
Tornado:	
Hurricanes:	Yes
Other Major Hazard Identified:	

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	
Emergency Air Supply:	Yes
Emergency Power:	
Backup Pump:	
Grounding Equipment:	Yes
Inhibitor Addition:	
Rupture Disks:	
Excess Flow Device:	
Quench System:	
Purge System:	Yes
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	Yes
Dikes:	Yes

Fire Walls:	
Blast Walls:	
Deluge System:	
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	Flare

Monitoring/Detection Systems in Use

Process Area Detectors:	Yes
Perimeter Monitors:	
None:	
Other Monitoring/Detection System in Use:	

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	Yes
Change Process Parameters:	
Installation of Process Controls:	Yes
Installation of Process Detection Systems:	
Installation of Perimeter Monitoring Systems:	
Installation of Mitigation Systems:	
None Recommended:	
None:	
Other Changes Since Last PHA or PHA Update:	

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	13-Sep-2012

Training

Training Revision Date (The date of the most recent review or revision of training programs):	30-Oct-2012

The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	

The Type of Competency Testing Used

Written Tests:	Yes
Oral Tests:	Yes
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures):	20-Apr-2012
Equipment Inspection Date (The date of the most recent equipment inspection or test):	07-Sep-2012
Equipment Tested (Equipment most recently inspected or tested):	Tank F-2 internal inspection

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures):	13-Sep-2012
Change Management Revision Date (The date of the most recent review or revision of management of change procedures):	17-Apr-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review):	06-Nov-2012

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit):	31-Dec-2013
Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit):	03-Sep-2012

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):	27-Aug-2012
Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):	28-Aug-2012

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans):	13-Apr-2012

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures):	23-Oct-2012

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures):	06-Sep-2012
Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance):	10-Jul-2012

Confidential Business Information

CBI Claimed:

Section 8. Program Level 2

Section 9. Emergency Response

Written Emergency Response (ER) Plan

Community Plan (Is facility included in written community emergency response plan?):	Yes
Facility Plan (Does facility have its own written emergency response plan?):	Yes
Response Actions (Does ER plan include specific actions to be taken in response to accidental releases of regulated substance(s)?):	Yes
Public Information (Does ER plan include procedures for informing the public and local agencies responding to accidental release?):	Yes
Healthcare (Does facility's ER plan include information on emergency health care?):	Yes

Emergency Response Review

Review Date (Date of most recent review or update of facility's ER plan):	02-Nov-2010

Emergency Response Training

Training Date (Date of most recent review or update of facility's employees):	30-Oct-2012

Local Agency

Agency Name (Name of local agency with which the facility ER plan or response activities are coordinated):	Channel Industries Mutual Aid Org.
Agency Phone Number (Phone number of local agency with which the facility ER plan or response activities are coordinated):	(281) 474-8028

Subject to

OSHA Regulations at 29 CFR 1910.38:	Yes
OSHA Regulations at 29 CFR 1910.120:	Yes
Clean Water Regulations at 40 CFR 112:	Yes
RCRA Regulations at CFR 264, 265, and 279.52:	Yes
OPA 90 Regulations at 40 CFR 112, 33 CFR 154, 49 CFR 194, or 30 CFR 254:	Yes
State EPCRA Rules or Laws:	Yes
Other (Specify):	

Executive Summary

General Executive Summary for Risk Management Plan at the Rhodia, Houston facility.
Date of plan: 11/07/12
Rev. 0

1. Accidental Release Prevention and Emergency Response Policies
The Houston plant is strongly committed to employee, public and environmental safety. This commitment is demonstrated in the comprehensive accidental release prevention program that covers areas such as design, installation, operating procedures, maintenance, and employee training associated with the processes at the Houston plant. It is Houston plant policy to implement appropriate controls to prevent possible releases of regulated substances.

2. The Stationary Source and the Regulated Substances Handled
The Houston plant's primary activities encompass Chemical Manufacture, due to which regulated substances could be stored and/or handled on site. These substances include Oleum (Fuming Sulfuric acid), Sulfur Trioxide (liquefied), Carbon Disulfide, Vinyl Acetate, Toluene Di-isocyanate, Propionitrile, Acrylonitrile, Methyl Mercaptan, Ethyl Mercaptan, Acetaldehyde, Allyl Alcohol, Propylene Oxide, Hydrazine, Hydrogen Sulfide, Isopropylamine, 1-Butene, Propylene, Cis Butene-2, Trans Butene-2, Isobutylene, 1,3 Butadiene, Isopentane, Ethyl Chloride, Dimethylamine, Ethylamine, Methylamine, Trimethylamine, and Propane. Oleum (Fuming Sulfuric acid) is used as a chemical intermediate, as a drying agent and is a raw material for dyes and detergents. Sulfur trioxide is used as an intermediate in the production of high purity sulfuric acid for use in the electronics industry. Carbon Disulfide, Vinyl Acetate, Toluene Di-isocyanate, Propionitrile, Acrylonitrile, Methyl Mercaptan, Ethyl Mercaptan, Acetaldehyde, Allyl Alcohol, Propylene Oxide, Hydrazine, Hydrogen Sulfide, Isopropylamine, 1-Butene, Propylene, Cis Butene-2, Trans Butene-2, Isobutylene, 1,3 Butadiene, Isopentane, Ethyl Chloride, Dimethylamine, Ethylamine, Methylamine, Trimethylamine, and Propane could be received as waste streams for energy recovery and raw material value.

3. The General Accidental Release Prevention Program and the Chemical-Specific Prevention Steps
The Houston plant has taken all the necessary steps to comply with the accidental release prevention requirements set out under 40 CFR part 68 of the EPA. The following sections briefly describe the elements of the release prevention program that is in place at the Houston plant.

Process Safety Information
Houston Plant maintains a detailed record of safety information that describes the chemical hazards, operating parameters and equipment designs associated with all processes.

Process Hazard Analysis (PHA)
The Houston plant conducts comprehensive studies to ensure that hazards associated with our processes are identified and controlled efficiently. The methodology used to carry out these analyses is Checklist, What If/Checklist (combined), HAZOP (Hazard and Operability), Fault Tree and LOPA (Layer of Protection Analysis). The studies are undertaken by a team of qualified personnel with expertise in engineering and process operations and are revalidated at a regular interval of five years. Any findings related to the hazard analysis are addressed in a timely manner.

Operating Procedures
For the purposes of safely conducting activities within the Houston plant covered processes, the plant maintains written operating procedures. These procedures address various modes of operation such as initial startup, normal operations, temporary operations, emergency shutdown, emergency operations, normal shutdown and startup after a turnaround. The information is regularly reviewed and is readily accessible to operators involved in the processes.

Training
The Houston Plant has a comprehensive training program in place to ensure that employees who are operating processes are competent in the operating procedures associated with these processes. Refresher training is provided at least every three years and more frequently as needed.

Mechanical Integrity
Houston Plant carries out maintenance checks on process equipment to ensure proper operations. Process equipment examined

by these checks includes among others; pressure vessels, storage tanks, piping systems, relief and vent systems, emergency shutdown systems, controls and pumps. Maintenance operations are carried out by qualified personnel with previous training in maintenance practices. Furthermore, these personnel are offered specialized training as needed. Any equipment deficiencies identified by the maintenance checks are corrected in a safe and timely manner.

Management of Change
Written procedures are in place at Houston Plant to manage changes in process chemicals, technology, equipment and procedures. Process operators, maintenance personnel or any other employee whose job tasks are affected by a modification in process conditions are promptly made aware of and offered training to deal with the modification.

Pre-startup Reviews
Pre-start up safety reviews related to new processes and to modifications in established processes are conducted as a regular practice at the Houston Plant. These reviews are conducted to confirm that construction, equipment, operating and maintenance procedures are suitable for safe startup prior to placing equipment into operation.

Compliance Audits
The Houston Plant conducts audits on a regular basis to determine whether the provisions set out under the RMP rule are being implemented. These audits are carried out at least every 3 years and any corrective actions required as a result of the audits are undertaken in a safe and prompt manner.

Incident Investigation
The Houston Plant promptly investigates any incident that has resulted in, or could reasonably result in a catastrophic release of a regulated substance. These investigations are undertaken to identify the situation leading to the incident as well as any corrective actions to prevent the release from reoccurring. All reports are retained for a minimum of 5 years.

Employee Participation
The Houston Plant truly believes that process safety management and accident prevention is a team effort. Company employees are strongly encouraged to express their views concerning accident prevention issues and to recommend improvements. In addition, our employees have access to all information created as part of the facility's implementation of the RMP rule, including information resulting from process hazard analyses in particular.

Contractors
On occasion, the Houston plant hires contractors to conduct specialized maintenance and construction activities. Prior to selecting a contractor, a thorough evaluation of safety performance of the contractor is carried out. Houston Plant has a strict policy of informing the contractors of known potential hazards related the contractor's work and the processes. Contractors are also informed of all the procedures for emergency response should an accidental release of a regulated substance occur.

4. Five-year Accident History
Rhodia, Houston Plant has had an excellent record of preventing accidental releases. Due to the Houston plant's stringent release prevention policies, only 2 accidental releases off-site have occurred over the last 5 years. The releases occurred on 06/09/2012 and involved 30% oleum and the release on 11/29/2008 involved 20% oleum. No deaths or injuries occurred offsite or onsite from these releases.

5. Emergency Response Plan
Houston Plant maintains a written emergency response plan to deal with accidental releases of hazardous materials. The plan includes all aspects of emergency response including adequate first aid and medical treatment, evacuations, notification of local emergency response agencies and the public, as well as post-incident decontamination of affected areas. To ensure proper functioning, emergency response equipment is regularly inspected and serviced. In addition, the plan is promptly updated to reflect any pertinent changes taking place within our processes that would require a modified emergency response.

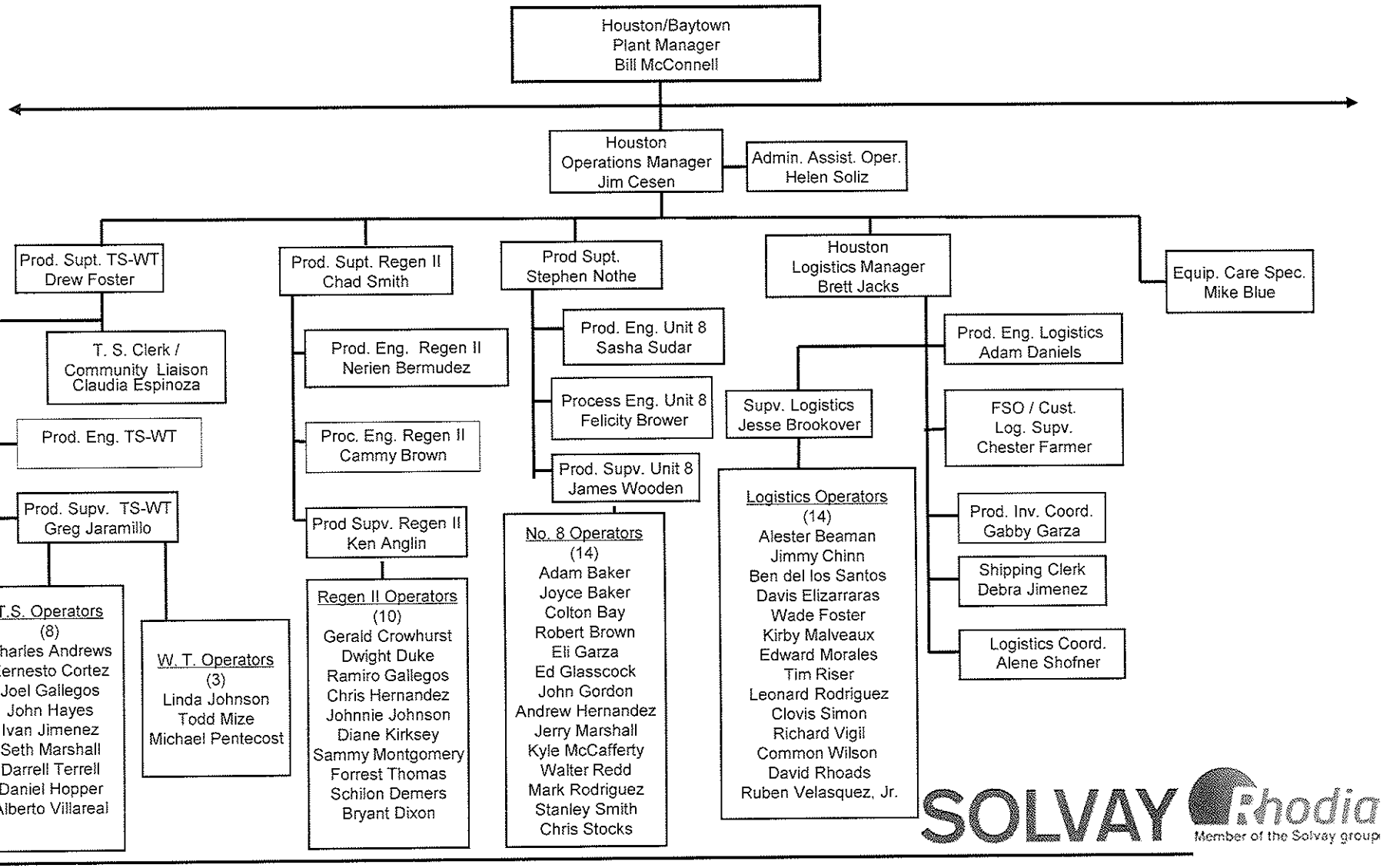
6. Planned Changes to Improve Safety
In order to encourage continuous improvement in all elements of Process Safety at the Houston plant reports to all employees on the progress of improvement efforts that are described in the Process Safety Management Plan. Many of these improvements are

results of audits and other reviews such as Management of Change, Process Hazard Analysis, Accident Investigations and others.

Section III – ATTACHMENTS

1. Process Description and corresponding Process Flow Diagrams
2. Current RMP Submittal
3. Facility Management System
4. Operating Procedures and Certifications
5. Operator Training Records
6. Compliance Audits
7. Exit Briefing Sign-In Sheet
8. Hot Work Permits
9. Process Chemistry (CBI) and Maximum Intended Inventory (CBI)

HOUSTON, TEXAS



SOLVAY Rhodia
Member of the Solvay group

Section III – ATTACHMENTS

1. Process Description and corresponding Process Flow Diagrams
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7. Exit Briefing Sign-In Sheet
8. Hot Work Permits
9. Process Chemistry (CBI) and Maximum Intended Inventory (CBI)

1.0 Purpose:

The purpose of this procedure is to feed T-18 onto Oleum Tower

2.0 Scope:

This procedure applies to Unit 8 Oleum tower

3.0 Responsibility:

The #8 Unit Superintendent is responsible for maintaining this form.

4.0 References:

N/A

5.0 Definitions:

N/A

6.0 Procedure:

Special Safety and Health Considerations or Unique Hazards:	**MSDS Information**
PPE Information:	**Per PPE Matrix**

Steps	Action	Reasons and Key Points to Watch For

1. Check Oleum concentration	Sample and check desired acid concentration	
2. Prepare process lineup	Line up the oleum feed to tower from A or D Pump south of Tank 31 through operator feed line	Coordinate with Logistics
3.	Line up the oleum feed to storage with the bypass valve completely open.	In this particular application, the control valve is for trim only.
4.	Verify cooling water is flowing through CIL cooler	Oleum pressure must always be greater than water pressure
5.	ADJUST gas valve (Valve #1) on the Absorbing tower .	Get pressure drop reading at the tower base. By feeding 18 tank will require less gas pressure. Monitor temperature on absorbing tower
6.	Verify that the controllers in the Control room are controlling the oleum level in the tower and the acid concentration.	Check gauges and level indicators. Along with the oleum analyzer.
7.	When temperatures are in range and analyzer is reading at desired strength. Pull sample.	Carry sample to lab in an approved sample carrying case to confirm analyzer reliability.
8. Secure process	When T-18 reaches 5' innage, secure pumps and change valve alignment	

7.0 Review Schedule:

This procedure will be reviewed, at a minimum, every three years or as required per the Houston Plant HS&E Plan.

8.0 Approvals:

This procedure requires the approval of the Unit Superintendent.

9.0 Records:

N/A

10.0 Attachments:

N/A

11.0 Flow Charts:

N/A

12.0 Revisions Log:

03/07/2002

1.0 Purpose:
The purpose of this procedure is to describe steps for the normal startup of the Regen 2 Oleum Tower recirculation pump in a way that sets the standards necessary for maintaining a safe manufacturing environment at the Houston Plant.

2.0 Scope:
This procedure applies to the practice of starting the Regen 2 Oleum Tower recirculation pump.

3.0 Responsibility:
The Regen – 2 Superintendent is responsible for maintaining this procedure.

4.0 References:
N/A

5.0 Definitions:
N/A

6.0 Procedure:

Special Safety and Health Considerations or Unique Hazards:	**MSDS Information**
PPE Information:	**Per PPE Matrix**

Steps	Action	Reasons and Key Points to Watch For
1. Pre-Startup	a. Check to make sure the main breaker to the pump is in the "ON" position b. Check the level in the oleum pump tank c. Open the 8" recycle valve approximately two turns d. Close the 2" acid drain valves on the Oleum Tower CIL e. Open the 12" acid valve to the exit of the Oleum Tower CIL	LT-1272 must be 5-5.5'
2. Recirculating Pump	Start the recirculating pump, P-275	

3. Cooling Water	a. Close the 2" water drain valves on the Oleum Tower CIL b. Open the 24" water inlet and outlet valves to the Oleum Tower CIL c. Make sure that one of the cooling tower pumps (P-282A or P-282B) is running	Control the acid temperature by bypassing acid around the cooler. Maintain an acid outlet temperature of 120-130°F. Refer to **SOP 20N 233.01** for starting the Oleum Tower CIL.
4. Cross-Feed Pumps	a. Start one of the Oleum Tower cross-feed pumps (P-276A or P-276B) b. Line up the flow of the cross-feed pump to AI-1291	
5. Final Check	a. Check valve alignment b. Maintain the proper Oleum Tower level c. Check for leaks, noises, or excessive vibrations	

7.0 Review Schedule:

This procedure will be reviewed, at a minimum, every three years or as required per the Houston Plant HS&E Plan.

8.0 Approvals:

This procedure requires the approval of the Unit Superintendent.

9.0 Records:

N/A

10.0 Attachments:

N/A

11.0 Flow Charts:

N/A

12.0 Revisions Log:

Brent Evans 09-15-2011

1.0 Purpose:

The purpose of this procedure is to describe the steps for switching the Oleum Tower cross-feed pumps in Regen 2 in a way that sets the standards necessary for maintaining a safe manufacturing environment at the Houston Plant.

2.0 Scope:

This procedure applies to the practice of switching the Oleum Tower cross-feed pumps.

3.0 Responsibility:

The Regen – 2 Superintendent is responsible for maintaining this procedure.

4.0 References:

N/A

5.0 Definitions:

N/A

6.0 Procedure:

Special Safety and Health Considerations or Unique Hazards:	**MSDS Information**
PPE Information:	**Per PPE Matrix**

Steps	Action	Reasons and Key Points to Watch For
1. Spare Pump Valves	a. Fully open the suction valve to the spare pump (P276A or B – North or South) b. Fully open the discharge valve of the spare pump	
2. Start Pump	Press the start button on the spare pump	

3. Shut Down In-Service Pump	a. Close the discharge valve on the pump that is being shut down b. Press the stop button on the pump that is being shutdown c. Close the suction valve	
4. Final Check	a. Check all valves positions b. Check that the out of service pump is secured c. Check for leaks, noise, or excessive vibration	

7.0 Review Schedule:
This procedure will be reviewed, at a minimum, every three years or as required per the Houston Plant HS&E Plan.

8.0 Approvals:
This procedure requires the approval of the Unit Superintendent.

9.0 Records:
N/A

10.0 Attachments:
N/A

11.0 Flow Charts:
N/A

12.0 Revisions Log:
Cammy Brown 10-31-2012

1.0 Purpose:
The purpose of this procedure is to describe steps for the normal start up of the Regen 2 Oleum Tower, pumps and CIL in a way that sets the standards necessary for maintaining a safe manufacturing environment at the Houston Plant.

2.0 Scope:
This procedure applies to the practice of placing the Regen 2 Oleum Tower in service.

3.0 Responsibility:
The Regen – 2 Superintendent is responsible for maintaining this procedure.

4.0 References:
N/A

5.0 Definitions:
N/A

6.0 Procedure:

Special Safety and Health Considerations or Unique Hazards:	**MSDS Information**
PPE Information:	**Per PPE Matrix**

Steps	Action	Reasons and Key Points to Watch For
1. Fill Oleum Tower	Fill the Oleum Tower to a satisfactory level between 7' using 25-LI-1272, 25-LI-1272B, and 25-LI-1272C	Fill from T-77, from the 98% pump tank, or #8 oleum line to T-77. Filling 98% pump tank requires more time for the concentration to increase to 107% and corrosion will be greatly increased.
2. Position Valves	a. Position the acid valves to circulate the tower b. Open the 8" bypass valve approximately 2 turns (¼ open)	

3. Recirculation Pump	a. Check to make sure the main breaker to the pump is in the "ON" position b. Verify level in the oleum tower pump tank c. Close the 2" acid drain valves on the Oleum Tower CIL d. Open the 12" acid chain valve to the exit of the Oleum Tower CIL e. Verify Nitrogen purge to seal is still turned on d. Start the recirculating pump, P-275	Pump Tank Level (25-LT-1272) must be 7'.
4. Cooling Water	a. Close the 2" water drain valves on the Oleum Tower CIL b. Open the 24" water inlet and outlet valves to the Oleum Tower CIL	Never bypass water to control temperature – only acid. Cooling Tower Fan(s) can be turned off to control cooling water temperature.
5. Oleum Tower CIL & Anatrol System	a. Verify 8" acid bypass valve alignment b. Start the anatrol protection system	Control acid temperature by bypassing acid around the Oleum Tower CIL cooler. Maintain an acid outlet temperature of 120-130°F.
6. Oleum Analyzer Loop	a. Close the 1" drain valves on the oleum analyzer system b. Open the north and south oleum analyzer valves from the pumps to the analyzer c. Open the 4 valves around the analyzer loop d. Open the valve from the analyzer to the pump suction	
7. Cross-Feed Pumps	a. Open the suction and discharge valves 100% of the pump that is to be put in service (P-276A or B) b. Start one of the Oleum Tower cross-feed pumps (P-276A or B) c. Line up the flow of the cross-feed pump to 25-AI-1291	Notes: Keep an eye on 98% pump tank concentration. When the oleum samples are within concentration spec (106.9% - 107.1%), the valves can be opened to T-77.
8. Final Check	a. Check valve alignment b. Maintain the proper Oleum Tower level of 4-6' c. Check for leaks, noises, or excessive vibrations	Level will increase ~ 2-3' from runback if tower is shutdown.

7.0 Review Schedule:
This procedure will be reviewed, at a minimum, every three years or as required per the Houston Plant HS&E Plan.

8.0 Approvals:
This procedure requires the approval of the Unit Superintendent.

9.0 Records:
N/A

10.0 Attachments:
N/A

11.0 Flow Charts:
N/A

12.0 Revisions Log:
Cammy Brown 10-29-2012

1.0 Purpose:
The purpose of this procedure is to describe steps for the normal shutdown of the Regen 2 Oleum Tower in a way that sets the standards necessary for maintaining a safe manufacturing environment at the Houston Plant.

2.0 Scope:
This procedure applies to the practice of taking the Regen 2 Oleum Tower out of service.

3.0 Responsibility:
The Regen – 2 Superintendent is responsible for maintaining this procedure.

4.0 References:
N/A

5.0 Definitions:
N/A

6.0 Procedure:

Special Safety and Health Considerations or Unique Hazards:	**MSDS Information**
PPE Information:	**Per PPE Matrix**

Steps	Action	Reasons and Key Points to Watch For
1. Oleum Tower Level	Lower the level of the Oleum Tower by putting LV-1272 into manual with an output of 100%	The tower level should be approximately 4-5.5'. Tower run back will cause the level to rise 2-3'.
2. Oleum CIL Bypass	Open the 8" Oleum Tower CIL cooler bypass valve halfway	
3. Control Valves	a. Fully close the control valve on the Oleum line to T-77 (25-LIC-1272) b. Close the block valves on both sides of the control valve c. Fully close the control valve on the 98% feed to the Oleum Tower (25-AIC-1271) d. Close the block valves on both sides of the control valve	Verify bypass valve around controller is closed. Verify bypass valve around controller is closed.

4. Cross-Feed Pumps	a. Press the stop button located in the field for the pump that is in service (P-276A or B) b. Block in the suction and discharge valves of the pump c. Close the recirculation on the cross-feed discharge valve on the discharge header back to the tower	Prevents pump damage from running dry when the tower recirculation pump is stopped and spinning backwards. Prevents Oleum from going back to the tower when feeding from Tank 77.
5. Oleum Analyzer Loop	a. Close the north and south oleum analyzer valves from the pumps to the analyzer b. Close the 4 valves around the analyzer loop c. Close the valve from the analyzer to the pump suction	If system is to be drained - Open the 1" drain valves on the oleum analyzer system.
6. Recirculation Pump	Press the stop button located in the field to the recirculation pump	Leave the nitrogen purge on the seal.
7. Oleum Tower CIL & Anatrol System	a. Close the 12" acid chain valve from the CIL cooler to the tower b. Shut off the anatrol protection system	If system is to be drained - Open the 2" acid drain valves on the Oleum Tower CIL cooler.
8. Oleum Valves	a. Close the 6" product line valve going to the suction of the cross-feed pumps b. Fully close the control valve on the oleum to 98% pump tank line (25-FIC-1397) d. Close the oleum cross-feed block valves on top of the 93% and 98% pump tanks	If system is to be drained - Open the ¾" expansion joint drain valves.
9. Cooling Water Valves	Close the 24" water inlet and outlet valves to the Oleum Tower CIL	If system is to be drained - Open the 2" water drain valves on the Oleum Tower CIL.
10. Final Check	a. Verify valve positions b. Check area for leaks	NOTE: Depending on the situation (oleum tower out of service due to turnaround, day shutdown, repairing leak in the system, etc.), a 98% flush may be required but this would be determined when the change is to be made. Discuss with supervisor.

7.0 Review Schedule:

This procedure will be reviewed, at a minimum, every three years or as required per the Houston Plant HS&E Plan.

8.0 Approvals:

This procedure requires the approval of the Unit Superintendent.

9.0 Records:
N/A

10.0 Attachments:
N/A

11.0 Flow Charts:
N/A

12.0 Revisions Log:
Brent Evans 09-16-2011
Cammy Brown 10-31-2012

1.0 Purpose:
The purpose of this procedure is to describe steps to unplug the equalizing line of the Regen 2 Oleum Tower in a way that sets the standards necessary for maintaining a safe manufacturing environment at the Houston Plant.

2.0 Scope:
This procedure applies to the practice of unplugging the equalizing line of the Regen 2 Oleum Tower.

3.0 Responsibility:
The Regen – 2 Superintendent is responsible for maintaining this procedure.

4.0 References:
N/A

5.0 Definitions:
N/A

6.0 Procedure:

Special Safety and Health Considerations or Unique Hazards:	**MSDS Information**
PPE Information:	**Per PPE Matrix**

Steps	Action	Reasons and Key Points to Watch For
1. Boot Tank Level	Verify the need to unplug the equalizing line	Check the DCS level of the boot tank (25-LI-1272B&C). If the reading is significantly different than oleum tower level (25-LIC-1272A) go into the field and physically touch the boot tank to verify the level. If the level is reading true there will be a temperature difference on the boot tank.

2. Equalizing Line to Oleum Tower	a. Close isolation valves on the equalizing line to boot tank and oleum tower b. Verify air hose is free of moisture. Attach air hose and open 100% c. Open valve to air line d. Open isolation valve to oleum tower and verify air is flowing e. Close isolation valve to oleum tower	Blow air-line before connecting to equalizing line to verify hose is dry
3. Equalizing Line to Boot Tank	a. Open isolation valve to boot tank and verify air is flowing b. Close isolation valve to air line c. Bleed air hose and remove j. Open isolation valve to oleum tower k. verify level on boot tank in field	Store hose in appropriate area
4. Final Check	a. Verify level on boot tank in field and DCS b. Check area for leaks	May take a few minutes for the level to come up in the boot tank

7.0 Review Schedule:
This procedure will be reviewed, at a minimum, every three years or as required per the Houston Plant HS&E Plan.

8.0 Approvals:
This procedure requires the approval of the Unit Superintendent.

9.0 Records:
N/A

10.0 Attachments:
N/A

11.0 Flow Charts:
N/A

12.0 Revisions Log:
Cammy Brown 12-19-2012

1.0 Purpose:
The purpose of this procedure is to describe steps for the lining up the Regen 2 Oleum Tower and feed T31 storage in a way that sets the standards necessary for maintaining a safe manufacturing environment at the Houston Plant.

2.0 Scope:
This procedure applies to the practice of lining up the Regen 2 Oleum Tower to feed T31 storage.

3.0 Responsibility:
The Regen – 2 Superintendent is responsible for maintaining this procedure.

4.0 References:
N/A

5.0 Definitions:
N/A

6.0 Procedure:

Special Safety and Health Considerations or Unique Hazards:	**MSDS Information**
PPE Information:	**Per PPE Matrix**

Steps	Action	Reasons and Key Points to Watch For
1. Oleum Tower	Place Oleum Tower in service. Refer to **SOP 20N 231.01**	Communicate with Unit 8 that oleum tower is in service and will be feeding T31 storage
2. Flow to T31 Storage	a. Open the jumper valve in the crow's nest b. Open the unit 8 operator feed valve on the bottom of the rack	Verify the pump out valve on the bottom of the jumper valve is open similar to as if flow was to T77 storage
3. Final Check	a. Verify acid flowing to T31 storage b. Check area for leaks	

7.0 Review Schedule:
This procedure will be reviewed, at a minimum, every three years or as required per the Houston Plant HS&E Plan.

8.0 Approvals:
This procedure requires the approval of the Unit Superintendent.

9.0 Records:
N/A

10.0 Attachments:
N/A

11.0 Flow Charts:
N/A

12.0 Revisions Log:
Cammy Brown 12-19-2012

1.0 Purpose:
The purpose of this procedure is to describe steps for the normal shut down of the Regen 2 Oleum Tower recirculation pump in a way that sets the standards necessary for maintaining a safe manufacturing environment at the Houston Plant.

2.0 Scope:
This procedure applies to the practice of stopping the Regen 2 Oleum Tower recirculation pump.

3.0 Responsibility:
The Regen – 2 Superintendent is responsible for maintaining this procedure.

4.0 References:
N/A

5.0 Definitions:
N/A

6.0 Procedure:

Special Safety and Health Considerations or Unique Hazards:	**MSDS Information**
PPE Information:	**Per PPE Matrix**

Steps	Action	Reasons and Key Points to Watch For
1. Oleum Tower Level	Lower the level of the Oleum Tower by putting LV-1272 into manual with an output of 100%	The tower should be approximately 5'. Tower run back will cause the level to rise 2-3'. The blower should be running between 2400-2600 RPM. Furnace fuels will have to be adjusted accordingly.
2. Oleum CIL Bypass	Open the 8" Oleum Tower CIL cooler bypass valve halfway	

3. Control Valves	a. Manually close off 25-LIC-1272 b. Close the block valves on both sides of the control valve c. The controller bypass should be closed d. Manually close the 98 feed to the Oleum Tower (25-AIC-1271) e. Close the block valves on either side of the control valve f. The control valve bypass should be closed	
4. Crossfeed Pumps	a. Press the stop button located in the field for the pump that is in service b. Block in the suction and discharge valves c. Close the recirculation on the crossfeed discharge valve on the discharge header back to the tower	Prevents pump damage from running dry when the tower recirculation pump is stopped. Prevents Oleum from going back to the tower when feeding from Tank 77.
5. Recirculation Pump	Press the stop button located in the field to the recirculation pump	Leave the nitrogen purge on the seal.
6. CIL	a. Close the 12" chain valve from the CIL cooler to the tower b. Open the acid drain valves on the Oleum Tower CIL cooler c. Shut off the anatrol protection system	
7. Oleum Valves	a. Close the 6" product line valve going to the suction of the crossfeed pumps b. Open the ¾" expansion joint drain valves c. Close the oleum crossfeed block valves on top of the 93 and 98 pump tanks d. Manually close 25-FIC-1397	
8. Cooling Water Valves	a. Close off the inlet and exit cooling water valves to the CIL cooler b. Open the cooling water drain valves	

7.0 Review Schedule:
This procedure will be reviewed, at a minimum, every three years or as required per the Houston Plant HS&E Plan.

8.0 Approvals:
This procedure requires the approval of the Unit Superintendent.

9.0 Records:
N/A

10.0 Attachments:
N/A

11.0 Flow Charts:
N/A

12.0 Revisions Log:
Cammy Brown 12-19-2012

#8 Unit Start Up Procedure and Checkilist
Procedure Number

Table of Contents

Operator Startup Checklist

Date _____
Time _____
Wind Speed _____
Wind Direction _____

Operators _____
_____
_____
Supervisor _____

	Checks Prior to Startup	Explanations	YES	NO	COMMENTS	
	Has the stack exit SO_2 and O_2 monitors been calibrated?	To ensure proper operation of the SO_2 and O_2 monitors during startup.				
	Is maintenance work completed and no in-line blanks or openings are left in lines or ducts?	Operators should make a complete round of the unit and double check shutdown work jobs.				
	Is the pump tank strength and Fe content acceptable?	Proper acid strength will ensure adequate absorbtion of SO_3 and minimize corrosion of piping. Normal strength = 98.5% - 99.3% Normal Fe content = <10ppm			Acid Strength - Lab Fe Content	Acid Strength - DCS
	Did you make an adjustment to the pump tank strength?	Low strength - Add oleum per instructions to bring into range. High strength - Add water per instructions to bring into range.			Pump tank strength resample	
	Check and record furnace temperature. Is it acceptable for startup?	Minimum furnace temperature is 510°F. There is a interlock at 700°F.				
	Check and record converter temperatures. Are they acceptable for startup?	See page 13 for converter temperatures.			1^{st} In 2^{nd} In 3^{rd} In 4^{th} In	1^{st} Out 2^{nd} Out 3^{rd} Out 4^{th} Out
	Was sulfur run into a barrel with the control valve open 100%?	This is to ensure sulfur will be supplied to the sulfur guns. Fill half the barrel.				
	Is the pump tank level transmitter accurate?	This is to ensure the true pump tank level is accurate and prevent overfilling or emptying the pump tank.			Manual gauge	Level Indicator

	Check and record the pump tank level?	65 to 70 inches of acid level is required to start a circulating pump. This will ensure the pump does not cavitate.			
	Is the absorbing tower pump in service?	Adequate flow over the absorbing tower will absorb SO_3, prevent brinks saturation, and prevent a smoking stack condition.			
	Are both the AT CIL water drains closed and the acid bypass valve fully open?	This will ensure water returns to the hotwell and acid will not cool to much.			
	Is the flow rate and turbine speed at acceptable range?	Normal flow = 5500 gpm			AT Flowrate
		Normal rpm = 2800 rpm			AT Turbine Speed
	Is the drying tower pump in service?	Adequate flow over the drying tower will absorb moisture from the air and prevent it from contaminating the converter catalyst.			
	Are both the DT CIL water drains closed and the acid bypass valve fully open?	This will ensure water returns to the hotwell and acid will not cool to much.			
	Is the flow rate and motor amps at acceptable range?	Normal flow = 5100 gpm			DT Flowrate
		Normal amps = 70 amps			DT Motor Amps
	Is the #8 Scrubber in service?	This will ensure any SO2 is scrubbed before exiting the stack.			Top stage flow rate
		Normal flow (top stage) = 1200 gpm			Bottom stage flow rate
		Normal flow (bottom stage) = 1200 gpm			
	Are the cross flow valves open at the recirculating pumps?	This will ensure the top stage of the scrubber does not run empty.			
	Is the upper stage pH acceptable for startup?	This will ensure there is enough caustic in the scrubber to maintain low SO_2 emissions while starting the unit up.			pH (top stage)
		Startup pH (top stage) = 10.0			

	Is the caustic addition set up in the proper mode and setpoint?	This will ensure the caustic valve will operate correctly. Scrubber should be set up in SO_2 control, cascade with the caustic valve, and with a setpoint of 50 ppm.			
	Is the #8 Cooling tower ready for service?	This will ensure there is adequate cooling available to cool the acid streams.			Level Pumps lined up (North, Middle, or South)
	Is the oleum tower and diluter out of service?				
	Are the #1 boiler valves adjusted properly?	This will ensure the temperature of the 1st bed inlet temperature targets 800°F for the start up. Block valve - 1/8 open Bypass valve - 100% open			
	Are the #2 boiler valves adjusted properly?	This will ensure the temperature of the 2nd bed inlet temperature targets 800°F for the start up. Block valve - 1/3 open Bypass valve - 100% open			
	Is the 4th bed air dilution valve adjusted properly?	This will ensure the temperature of the 4th bed inlet targets 750°F to 800°F. Air dilution valve - 100% closed.			

	Is the boiler steam drum at normal operating level and is it set in AUTO?	This will ensure proper operation of the boiler. Low level will cause the plant to trip. High level will cause water carryover into the steam header. Normal level is 55% on the DCS or half the sightglass (4 + 0.5 lugs).			Level
	Are the boiler chemical feed pots at the proper level and are the pumps running?	This is to ensure proper BFW treatment.			
	Is the deaerator at the normal operating level?	This is the ensure adequate supply of boiler water for the boilers. Normal operating level is 60%.			Level
	Is the electric boiler feedwater pump in service?	This is to pump boiler feedwater from the deaerator to the boiler. The recycle valve for the BFWP must be open 100% back to the deaerator to prevent cavitation.			Discharge Pressure Recycle Valve postion
	Is the main gas blower ready for service?				
	Is an electric oil pump in service and cooling water on the cooler?	to ensure cooling and lubrication systems are operating correctly.			

	Pre-Start Up Trip Checks	Explanations	YES	NO	COMMENTS
	Did the low water level on the #8 boiler alarm and trip correctly?	This will ensure proper operation of the low boiler water level interlock. Blowing the water column down should trip the blower trip and throttle valve.			
	Did the back-up electric motor start once the main oil pump stopped?	This is ensure the back up electric oil pump will start if the main oil pump were to fail and ensure the trip and throttle valve closes if there is low oil pressure.			
	Did the blower auxillary oil pump operate correctly when the electric pumps were stopped?	To ensure the steam auxillary oil pump starts up properly. To test the pump, stop both electric pumps and ensure the steam pump turns on and build up oil pressure.			
	Did the plant ESD operate correctly when tested?	To test the plant ESD and verify all parts are operational. The MGB trip and throttle valve should close and the Woodward governor should trip.			
	Did the sulfur block and bleeds activate?	To ensure the sulfur block and bleeds operate during a trip condition. This can be completed after sulfur was run into a barrel.			

*****Note: Do not start up unless all parts of this system are working.

	Checks During the Start Up	Explanations	YES	NO	COMMENTS
	Is the continuous blow down open on the #8 boiler?	This is to ensure there is water flowing through the economizer and prevent the economizer RV from relieving.			
	Is the turbine drain pot vent and drain closed? (Mark's pot)	To ensure there is vacuum on the turbine exhaust.			
	Are the blower fin fans in service?	To condense the steam from the blower turbine.			
	Is steam supplied to the jet ejectors?	This is to create a vacuum and remove noncondensibles from the condenser. Set point = 250 psig			Ejector Pressure
	Are both condensate pumps in service?	To pump condensate to the deaerator.			
	Is the SO_3 gas valve from the economizer to the absorbing tower open? (84" valve)	To allow the gas to flow to the absorbing tower and prevent the blower from surging.			
	Is the product pump lined up to pump to the storage tank? Do not start the pump until after start up.	To pump product acid to the storage tank as it is being made.			
	Is the drying tower exit valve open and does the position indicator show open?	To allow air to enter the furnace from the drying tower and prevent the blower from surging.			
	Is the sulfur control valve in manual and in the closed position and the manual block valves closed?	To ensure valves are closed and prevent sulfur from leaking through into the furnace.			
	Is the blower trip and throttle valve latched and the governor panel reset?	This allows steam to turn the blower.			
	Is the blower controller in AUTO with a setpoint of 0 rpm?	This is to allow the governor to be switched to remote speed control after starting the blower.			

Blower Start-up / MGB speed step 1

	Step	Explanations	OK?	Comments
	Put the blower governor in local and bring the blower to 500 rpm's. Once blower is at 500 rpm's switch the governor panel from local to remote.	This is to slowly purge and excess SO_2 or SO_3. This normally takes 5-15 minutes. Blower vacuum must be > 10"Hg		Refence MGB speed step #1 on page 14.
	Check furnace pressure indicator to establish air flow through the unit.	Pressure on the furnace is another check to ensure air flow.		
	Is the stack SO_2 monitor picking up and SO_2?	Residual sulfur in the furnace could cause SO_2 to exceed the allowable limit and must be monitored closely.		Shutdown the blower if the start-up SO_2 exceeds 400ppm. The SO_2 limit under normal operating conditions is 3.0 lb/ton acid for a 3 hour average. This is roughly 200 ppm averaged over 3 hours. This limit does not apply during the first 24 hours after a start-up.
	Does the stack have any opacity?	Opacity should be measured visually along with the use of the opacity meter.		Maximum permit limit is 10% opacity for 6 minutes.
	Are the ambient SO_2 monitors picking up and SO_2 concentrations?	Ambient SO_2 monitors will pick up any SO_2 in the viscinity.		Ground level SO_2 should not exceed 0.28 ppm for a 30 minute average. Abort start-up if these conditions exist.
	Is the blower vacuum greater than 15"Hg?	This is to ensure the steam leaving the turbine is condensing at the fin fans.		Do not increase blower speed or add sulfur until vacuum reaches 15"Hg.
	Has the furnace temperature dropped 50°F?	This is to ensure there is no residual sulfur left in the furnace before sulfur initiation.		Do not increase the blower speed or start sulfur initiation until this check has been completed.
	Does the stack have any opacity?	Opacity should be measured visually along with the use of the opacity meter.		Maximum permit limit is 10% opacity for 6 minutes.
	Is the stack SO_2 concentration below 50 ppm and stable?	Do not start sulfur until SO_2 concentration is stable and below 50ppm.		There is an interlock for stack SO_2 set at 500 ppm with a 1 minute delay.

Sulfur Initiation Step / MGB speed step 2				
	Step	Explanations	OK?	Comments
	Speed the blower up to 1500-1600 rpm's.	Minimum blower speed before introducing sulfur to the furnace.		Refence MGB speed step #2 on page 14.
	Line up sulfur to the start-up sulfur gun.	Keep the sulfur control valve closed along with the block valves to the three other sulfur guns closed.		
	Slowly add sulfur to the furnace until the furnace temperature rises to 1200-1250°F.			Visually check for sulfur ignition by looking into the sight glass in the front of the furnace.
				If furnace temperature exceeds 1400°F all sulfur must be shut off until temperature comes into range.
				Look for puddling of sulfur on the furnace floor. Puddle should be well agitated to avoid sudden increase of SO_2.
				If sulfur ignition is not visible and furnace temperatures do not increase, shut off sulfur to the furnace and abort start-up until the cause is determined.
	Is the stack SO_2 monitor picking up any SO_2?	Residual sulfur in the furnace could cause SO_2 to exceed the allowable limit and must be monitored closely.		Shutdown the blower if the start-up SO_2 exceeds 400ppm.
				The SO_2 limit under normal operating conditions is 3.0 lb/ton acid for a 3 hour average. This is roughly 200ppm averaged over 3 hours. This limit does not apply during the first 24 hours after a start-up.
	Does the stack have any opacity?	Opacity should be measured visually along with the use of the opacity meter.		Maximum permit limit is 10% opacity for 6 minutes.
	Are the ambient SO_2 monitors picking up and SO_2 concentrations?	Ambient SO_2 monitors will pick up any SO_2 in the viscinity.		Ground level SO_2 should not exceed 0.28ppm for a 30 minute average. Abort start-up if these conditions exist.
	Maintain these settings until 1st layer inlet temperature exceeds 800°F.			Refence MGB speed step #2 on page 14.

	Is the pump tank water feed controller in auto with the desired setpoint and the manual block valves open?	To allow water to be added to the pump tank.		
	Are the Drying Tower and Absorbing Tower temperatures ok? If the temperature is higher, put the #8 CT in service?	Proper DT temperature 110°F-130°F. Proper AT temperature <135°F.		
	Are the Drying Tower and Absorbing Tower CIL anodic protection on and in service.	Proper temperature should be reached before starting the anodic protection. Turn on ANATROL at 122°F.		
	Adjust the 1st and 2nd layer inlet temperatures as necessary by adjusting the boiler block and bypass valves to maintain an inlet gas temperature in the normal range.	Typical Inlet Temperature = 800°F.		
	Is the stack SO_2 monitor picking up any SO_2?	Residual sulfur in the furnace could cause SO_2 to exceed the allowable limit and must be monitored closely.		Shutdown the blower if the start-up SO_2 exceeds 400ppm. The SO_2 limit under normal operating conditions is 3.0 lb/ton acid for a 3 hour average. This is roughly 200ppm averaged over 3 hours. This limit does not apply during the first 24 hours after a start-up.
	Does the stack have any opacity?	Opacity should be measured visually along with the use of the opacity meter.		Maximum permit limit is 10% opacity for 6 minutes.
	Are the ambient SO_2 monitors picking up and SO_2 concentrations?	Ambient SO_2 monitors will pick up any SO_2 in the viscinity.		Ground level SO_2 should not exceed 0.28ppm for a 30 minute average. Abort start-up if these conditions exist.
	Are the steam header pressures at the desired settings?	1. Add load to the generators. 2. Reduce firing rate of the package boiler. 3. Start the steam boiler feedwater pump.		High steam pressure could cause back pressure in the boiler and cause the relief valves to open.
	Is the steam drum level at the desired setting and are the block valves at the level controller wide open?	Normal level should be 1/2 full. The water will initially expand from heating up and then the level will start to drop.		

	Is the 1st layer inlet temperature at 800°F and the 1st layer exit temperature above 1050°F and rising?			Should be 2-3 hours.
	Raise the blower speed to 2000 - 2200 rpm's maintaining the same furnace temperature.			Procede to Blower Speed Step #3 on page 14.
	Adjust the 1st and 2nd layer inlet temperatures as necessary by adjusting the boiler block and bypass valves to maintain an inlet gas temperature in the normal range.	Typical Inlet Temperature = 800°F.		
	Start the make-up water addition to the top stage of the caustic scrubber. Start with 20 gpm of water flow and close the cross over valves.	20 gpm will be enough to keep the top stage from running empty. Monitor bottom stage specific gravity and adjust as necessary.		
	Set the scrubber to pump to either the Regen 2 acidulator or the #8 acidulator.	This will ensure the scrubber product will be processed and the scrubber will not fill.		There is an interlock to shut down #8 if the scrubber level is to high.
	Once the 1st and 2nd bed tempertures have reached normal operating temperatures, increase the blower to the desired production rate.	Typical Inlet Temp = 800°F (both beds) Typical Outlet Temp = 1150°F (1st bed) Typical Outlet Temp = 930°F (2nd bed)		Should take ~2 hours.
	Raise the furnace temperture to the specified temperature by putting the controller in automatic and opening sulfur guns when needed.	Typical Furnace Temp = 1700°F		Should be ~4 hours.
	Is the stack SO_2 monitor picking up any SO_2?	Residual sulfur in the furnace could cause SO_2 to exceed the allowable limit and must be monitored closely.		Shutdown the blower if the start-up SO_2 exceeds 400ppm. The SO_2 limit under normal operating conditions is 3.0 lb/ton acid for a 3 hour average. This is roughly 200ppm averaged over 3 hours. This limit does not apply during the first 24 hours after a start-up.
	Does the stack have any opacity?	Opacity should be measured visually along with the use of the opacity meter.		Maximum permit limit is 10% opacity for 6 minutes.

	Are the ambient SO_2 monitors picking up and SO_2 concentrations?	Ambient SO_2 monitors will pick up any SO_2 in the viscinity.		Ground level SO_2 should not exceed 0.28ppm for a 30 minute average. Abort start-up if these conditions exist.
	Pull an acid sample from the absorbing tower when the temperature is between 130°F - 150°F to verify acid strength and Fe content.	This temperature range is within the compensation range for the conductivity meter.		Ensure lab strength and analyzer strength are similar or a calibration is needed on the instrument.
	Start the product pumps to pump to the desired product storage tank.			
	Set the scrubber to pump to either the Regen 2 acidulator or the #8 acidulator.	This will ensure the scrubber product will be processed and the scrubber will not fill.		There is an interlock to shut down #8 if the scrubber level is to high.
	Check to ensure all valves are set at proper position for normal operation.			
	Monitor converter temperatures, acid strength, stack SO_2, opacity, etc. and other items on the logsheet.			
	Put the oleum tower in service as needed.			
	Run boiler water samples and make necessary adjustments.			
	Make sure the chemical feeds are being added to the cooling towers and the boiler. Make sure the cooling tower pH is within acceptable range (pH is 7.5-8.0).			
	Make a note in the log and verbally communicate any malfunctioning items the next shift should be aware of.			
	Make sure all interlocks are not bypassed and in the normal operating position.			

Minimum Converter Temperatures for Start-up

Recommended Temperatures not requiring a Natural Gas Heat-up

	In	Out
1st Layer	520	700
2nd Layer	650	700
3rd Layer	550	550
4th Layer	520	550

Consult with start-up supervisor on how to proceed if the temperatures are lower than the above temperatures.

Minimum temperatures after a Natural Gas Heat-up.

	In	Out
1st Layer	800	800
2nd Layer	750	750
3rd Layer	600	600
4th Layer	600	600

#8 Unit has been started up with the following conditions after a prolonged shutdown due to changing out the Dry Tower Brinks Elements and with the addition of the Caustic Scrubber.

	In	Out
1st Layer	405	577
2nd Layer	503	701
3rd Layer	565	733
4th Layer	662	670
Furnace Temperature		840

These temperatures are a reference of what has happened in the past. Please consult with start-up supervisor if these temperatures are present.

Blower Speed Step #1
Unit Purge Sequence

	Maximum	Minimum	Preferred Range
Blower Speed RPM Must be Stable	700	200	450-600
Furnace Temperature Must be Decreasing	N/A	510 Interlock at 700	950-1200
Sulfur Flow	0	0	0
Blower Vacuum Must be Increasing	27	15	20-25
Furnace Pressure	30	5	5-10

Blower Speed Step #2
Sulfur Initiation Sequence

	Maximum	Minimum	Preferred Range
Blower Speed RPM	1700	1200	1500-1600
Furnace Temperature	1400	510 Interlock at 700	1200-1250
Sulfur Flow	20	8	10-15
Number of Sulfur Guns	1	1	1

Blower Speed Step #3
Begin to Bring Unit up to Maximum Speed

	Maximum	Minimum	Preferred Range
Blower Speed RPM	2500	1800	2000-2200
Furnace Temperature	1400	1200	1200-1250

#8 Unit Shutdown Checklist
Procedure Number _____

Date _____

Operators _____

_____

_____

Supervisor _____

		YES	NO	COMMENTS
1	Sulfur flow controller in manual closed position?			
2	Sulfur guns closed off?			
3	Steam on sulfur guns?			
4	Are the sulfur guns leaking steam?			
5	Sulfur manual valve closed and line drained to barrel?			
6	Absorbing tower water feed controller in manual closed position?			
7	Water to pump tank block valves closed?			
8	Blower speed controller in manual and closed position?			
9	Air valve to furnace closed?			
10	Drying tower pump shutdown?			
11	Product pump shutdown and valves closed?			
12	Electric boiler feedwater pump on?			
13	Blower fin fans shutdown?			
14	Is the turnine drain pot open to drain the turbine of condensate? (Mark's pot)			
15	Seal steam, jet ejectors, and hot well pumps off?			
16	Oleum tower shutdown with feed loop and storage loop manual and automatic valves closed?			
17	Cooling water off oleum tower CIL and the drains open?			
18	Is the anodic protection turned off the oleum tower CIL?			

		YES	NO	COMMENTS
19	Diluter shutdown with product feed valve and water feed valve closed?			
20	Cooling water off the exchangers and exchangers drained of cooling water?			
21	Cooling water pumps and fans shutdown?			
22	Strong acid and chemical feeds to cooling towers shut off? (Leave AEC running for short term shutdowns)			
23	Drain the water from the AT CIL, DT CIL, and product cooler?			
24	Is the CW header valve to product cooler closed?			
25	Absorbing tower pump left running if possible?			
26	Is the anodic protection turned off the DT CIL and AT CIL?			
27	Pump tank level has adequate space if absorbing tower pump shuts down? (Note: 24% level increase of runback for each tower)			
28	Boiler water at normal level?			
29	#1 and #2 boiler gas exit valves closed and bypasses open?			
30	Blower oil pump running?			
31	Air dilution valve closed?			
32	AUX cooling tower in service for 65% oleum and 70% diluter?			
33	Stripper valves secured and line blown to neutralization?			
34	Scrubber water and caustic valves closed and cross over valves open? Demin water feed off Scrubber, blocked in and pump off?			
35	Raise the steam pressure on the front of the furnace while the unit is down.			
36	Is the AT CIL pH probe out of service? See SOP# HO-UNIT8-SOP016-UNIT8			
37	Was this an emergency shutdown?			
38	If answer to #37 was YES list in detail the sequence of events			

		YES	NO	COMMENTS

Rhodia EcoServices

8615 Manchester St.

Houston, TX. 77012

December 27, 2012

Certification of Standard Operating Procedures

I hereby certify that the Standard Operating Procedures for the #8 Unit, Utilities, 65% and TXUP of the rhodia Inc. Houston site were reviewed in 2012 and were determined to be accurate and current. Qualified personnel,Drew Foster and I have reviewed these Standard Operating Procedures, ensuring that they reflect current practices, including modifications resulting from changes in process chemicals, technology, equipment and changes to stationary sources.

Jimmy Wooden

12-27-2012

Jimmy Wooden, #8 Production Supervisor — Date

Unit/Area: #8 Unit

Rhodia Inc. Houston

Rhodia
8615 Manchester St
Houston, TX 77089

ANNUAL CERTIFICATION
OF
STANDARD OPERATING PROCEDURES

I hereby certify that the Standard Operating Procedures for the Regen II operating unit of the Rhodia Inc. Houston site are accurate and current. Qualified personnel under my direction have reviewed these Standard Operating Procedures, ensuring that they reflect current practice.

Robert Stafford, Operations Superintendent — Date 3/16/09
Unit/Area: Regen II
Rhodia Inc., Houston

Rhodia
8615 Manchester St
Houston, TX 77089

ANNUAL CERTIFICATION
OF
STANDARD OPERATING PROCEDURES

I hereby certify that the Standard Operating Procedures for the Regen II operating unit of the Rhodia Inc. Houston site are accurate and current. Qualified personnel under my direction have reviewed these Standard Operating Procedures, ensuring that they reflect current practice, including modifications resulting from changes in process chemicals, technology and equipment and changes to stationary sources.

Dean L. Sloan — 3/19/2010

Dean Sloan, Operations Superintendent — Date
Unit/Area: Regen II
Rhodia Inc., Houston

Rhodia
Eco Services Enterprise
Houston Plant

MEMORANDUM

ANNUAL CERTIFICATION
OF
STANDARD OPERATIONG PROCEDURES

I here by certify that the Standard Operating Procedures for

Regen II

area of Rhodia Inc Houston Site are accurate and current. Qualified personnel under my direction have reviewed these Standard Operating Procedures, ensuring that they reflect current practice.

Operation Superintendent — 6/30/11 Date

Unit/Area: Regen II

Rhodia (Solvay)

8615 Manchester St.

Houston, TX

ANNUAL CERTIFICATION

OF

STANDARD OPERATING PROCEDURES

I hereby certify that the Standard Operating Procedures (SOPs) the for **REGEN II** area of Rhodia (a member of the Solvay Group) Houston Site are accurate & current. Qualified personnel under my direction have reviewed these SOPs, ensuring that they reflect our current practice.

Operations Superintendent Chad Smith

Date 8-Nov, 2012.

Unit/Area Regen II.

Rhodia

Houston Plant

2007

ANNUAL CERTIFICATION
OF
STANDARD OPERATING PROCEDURES

I hereby certify that the Standard Operating Procedures for the

Logistics

(Name of Unit/Area)

of the Rhodia Inc. Houston Plant site are accurate and current. Qualified personnel under my direction have reviewed these Standard Operating Procedures, ensuring that they reflect current practice.

Logistics Superintendent

2/15/08

Date

Unit/Area: Logistics
Rhodia Inc.,
Houston Plant

"2008"

Rhodia

Houston Plant

ANNUAL CERTIFICATION
OF
STANDARD OPERATING PROCEDURES

I hereby certify that the Standard Operating Procedures for the

Logistics

(Name of Unit/Area)

of the Rhodia Inc. Houston Plant site are accurate and current. Qualified personnel under my direction have reviewed these Standard Operating Procedures, ensuring that they reflect current practice.

Matt Butler

Logistics Superintendent
Unit/Area: Logistics
Rhodia Inc.,
Houston Plant

1/5/09

Date

8615 Manchester St
Houston, TX 77089

ANNUAL CERTIFICATION
OF
STANDARD OPERATING PROCEDURES

I hereby certify that the Standard Operating Procedures for the Logistics Department at Rhodia Inc.'s Houston site are accurate and current. Qualified personnel under my direction have reviewed and updated department Standard Operating Procedures, ensuring that they reflect current practice.

R. Brett Jacks, Logistics Manager Date
Rhodia Inc., Houston

6/2/09

8615 Manchester St
Houston, TX 77089

ANNUAL CERTIFICATION
OF
STANDARD OPERATING PROCEDURES

I hereby certify that the Standard Operating Procedures for the Logistics Department of the Rhodia Inc. Houston site are accurate and current. Qualified personnel under my direction have reviewed these Standard Operating Procedures, ensuring that they reflect current practice, including modifications resulting from changes in process chemicals, technology and equipment and changes to stationary sources.

Brett Jacks, Logistics Manager, Rhodia, Houston Date: 6/25/10
Unit/Area: Logistics
Rhodia Inc., Houston

Rhodia
Eco Services Enterprise
Houston Plant

MEMORANDUM

ANNUAL CERTIFICATION
OF
STANDARD OPERATIONG PROCEDURES

I here by certify that the Standard Operating Procedures for

Logistics

area of Rhodia Inc Houston Site are accurate and current. Qualified personnel under my direction have reviewed these Standard Operating Procedures, ensuring that they reflect current practice.

Operation Superintendent

Unit/Area: Logistics

2/18/11
Date

Rhodia (Solvay)

8615 Manchester St.

Houston, TX

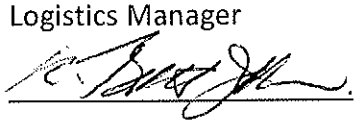
ANNUAL CERTIFICATION

OF

STANDARD OPERATING PROCEDURES

I hereby certify that the Standard Operating Procedures (SOPs) for oleum for the **Logistics Department** of Rhodia (a member of the Solvay Group) Houston Site are accurate & current. Qualified personnel under my direction have reviewed these SOPs, ensuring that they reflect our current practice.

Logistics Manager



Date 11/8/12 .

Unit/Area Logistics .

Section III – ATTACHMENTS

1. Process Description and corresponding Process Flow Diagrams
2. Current RMP Submittal
3. Facility Management System
4. Operating Procedures and Certifications
5. Operator Training Records
6. Compliance Audits
7. Exit Briefing Sign-In Sheet
8. Hot Work Permits
9. Process Chemistry (CBI) and Maximum Intended Inventory (CBI)

Name Jerry Marshall Job Title Chief Operator

Check the appropriate boxes to indicate the following:

D = Demonstrate; W = Written; V = Verbal; P = Pass; F = Fail

No.	D	W	V	Job Procedures/Job Aspects	P	F	Date
1	✓			Unit Startup Procedure	P		4-3-2012
2	✓			Unit Shut Down Procedure	P		"
3	✓			Oleum Tower Startup Procedure	P		"
4	✓			Diluter Startup Procedure	P		"
5	✓			#8 Boiler and Cooling Tower Water Tests	P		
6	✓			Unit Heat Up Procedure	P		"
7			✓	Unit Emergency Alarm and Shutdown Procedure	P		"
8			✓	Unit Critical Operating Parameters	P		
9			✓	Unit Interlock Matrix	P		"
10			✓	Emergency Scenarios	P		"
11			✓	Permit Limits	P		"
12			✓	Unit Safety Rules and PPE Requirements	P		"
13			✓	Life Critical Permit Procedures	P		"
14		✓		Written Test	P		4

Overall Performance: (Circle One) (Pass) Fail

Evaluator's Comments: _____

Trainee's Comments: _____

Trainee's Signature: Jerry Marshall Date: 4-3-2012

Evaluator's Signature: Jay Worden Date: 10/2012

Demonstrate	The Operator will either perform or demonstrate how to perform the procedure
Verbal	The Operator will verbally answer the questions based n the procedure
Written	The Operator will take the final written exam
Pass	Greater than or equal to 80% of the answers are correct
Fail	Less than 80% of the answers are correct

Name: Jerry Marshall

#8 Operator Recertification Test

1. List the PPE required for starting a piece of equipment, after maintenance has worked on it, where a potential for acid exposure could occur?

   Hard HAT - Faceshield - Goggles - Slicker
   Rubber Glouvs - Rubber Boots

2. What is the Mastercard permit system and why do we use it?

   This Form is used to Document A lockout Between Maint. + operations - It show all Lock on SOB + verified By Maint. That the Equipment is 0/S + Ready for work

3. List five critical operating parameters (COP's), the critical set points, what may cause the condition and your response? (Be brief)

   1) ABS Pump Less <4800 Sulfur trip <3440 Blower Trip
   2) Stack High SO2 500 ppm SO2 1 min Unit Trips
   3) DT Flow <3600 Sulfur Trips <2637 unit trips
   4 Scrubber Low Flow Less 600 GPM unit Trips
   5. MGB Discharg Pressure 280 or Higher Trips Blower

4. Describe the steps in order, how to bring the unit up to full production after a short shutdown?

   Pull Startup Sample Scrubber 1/S Stripper 1/S Trip checks vacuum on cond. ABS Running DT Running Roll Blower 500 RPM Monitor Stack + Furnace - watch converter temps Apply Sulfur watch SO2 add caustic to maintain it SO2

5. List the #8 operating permit limits?

   Opacity Less 10% Avg 10 min
   500 Peak SO2
   1.7 ppm Long Term SO2
   3.0 ppm 3 Hr. SO2

6. Describe the procedure on how to feed 20% Oleum on the Oleum tower to make 30%?

   Open 8" valve on close 48" valve Adjust H2O or CLL
   Line up 20% From Tank by OBL to OT - Monitor Level + Strength of Tower + Adjust to maintain Proper Level + strength

7. The sulfur pump stops and will not restart and the spare is out of service. What would be your response?

   Put Sulfur valve in manual open to were it was Approx
   Go to Sulfur Pump try to Reset it - if it wont Go
   Notify R-2 + other operator unit is Going Down

8. Why are cooling tower and boiler water chemicals important to the unit? How often should the analyses be performed?

Caustic - Alkalinity + pH in Boiler - Bleach Maintain Cl in CT
Control O2 Scavenger - Steamate Raise Condensate pH
Optisperse Corrosion inhibitor   Feedwater 8.8 to 9.2 Silica < .05
Strong Acid on Tower pH Control   Conductivity < 20   Condensate pH 8.8 to 9.2 Conductivity < 20
CT pH 7.8-8.6 Cond 1500-2300   Hardness < 0.1
Boiler Cond 700

9. What is the first indication of a boiler tube leak and what would your response be?

See a Rise in Opacity - And Temp will Rise - Boiler bench will fill out
Shut down unit + Secure ASAP - Leave ABS Pump Running - Leak Acid Starts
Close off Non Return ope Boilers So Drain water + Economizer Drain
Leave CT I/S To Cool Acid

10. What is stack opacity? What should your response be if opacity is rising?

Opacity is Moisture in The System - Check Steam on Sulfur Guns + Check Boiler Cold End + Economizer Drains Also Check make Sure Acid temps are in Range

11. Describe how to switch the scrubber liquid flow from regen to #8 acidulator?

Startup up Acidulator Fan + Pumps Call R-2 Tell Them All liquid is Coming to Them

12. Describer how to switch the #8 scrubber from SO2 control to pH control and in what sceanrios would you do this?

Stack Testing + Calibration of Stack
Use mouse Press Logo Switch to pH Control and vice versa
to go Back to SO2 Control you can also Raise Caustic up to Help Raise pH on upper stage

13. What interlocks to the unit are on the Scrubber system and what are they?

Scrubber Level 97% to keep from over filling Scrubber
Scrubber Flow < 600 to Ensure you Have Circulation over The Tower
High Stack SO2 500ppm 1 min

NO. 2 OPERATOR TRAINEE PERFORMANCE RECORD

NAME: Tony Marshall STAUFFER EMPLOYEE SINCE: 1981

S.A.P. OPERATIONS ENTRY: 3-10-82

	JOB FUNCTION	DATE TRAINED	TRAINER	DATE, FOLLOW UP TRAINING, COMMENTS	FINAL REVIEW AND COMMENTS
I	LUBRICATION				
	a. No. 8 blower turbine	3-11-82	DS	4-22 OK	6-4 OK
	b. No. 8 cooling tower pumps	3-11-82	DS	〃	
	c. No. 8 water booster pumps				
	d. No. 8 drying tower gearbox, motor, pump	3-11-82	DS	4-22 OK	6-4 OK
	e. No. 8 absorbing tower turbine, gearbox, pump	3-11-82	〃	〃	〃
	f. No. 8 steam boiler feed pump turbine, pump	3-11-82	〃	〃	〃
	g. No. 8 electric boiler feed pump	3-11-82	〃	〃	〃
	h. Treated water pumps(5)				
	i. Inert gas generator				
II	ACID SAMPLING				
	a. P.P.E.	3-12-82	DS	4-22 OK	6-4 OK
	b. Types of acid to be sampled (115, 107, 104.5, 99, 96, 93)	3-12-82	〃	〃	〃
	c. Method	3-12-82	〃	〃	〃

NO. 2 OPERATOR TRAINEE PERFORMANCE RECORD

NAME: Jerry Marshall STAUFFER EMPLOYEE SINCE: 1981

S.A.P. OPERATIONS ENTRY: 3-10-82

	JOB FUNCTION	DATE TRAINED	TRAINER	DATE, FOLLOW UP TRAINING, COMMENTS	FINAL REVIEW AND COMMENTS
I	LUBRICATION				
	a. No. 8 blower turbine	3-11-82	DS	4-22 OK	6-4 OK
	b. No. 8 cooling tower pumps	3-11-82	DS	"	
	c. No. 8 water booster pumps				
	d. No. 8 drying tower gearbox, motor, pump	3-11-82	DS	4-22 OK	6-4 OK
	e. No. 8 absorbing tower turbine, gearbox, pump	3-11-82	"	"	"
	f. No. 8 steam boiler feed pump turbine, pump	3-11-82	"	"	"
	g. No. 8 electric boiler feed pump	3-11-82	"		
	h. Treated water pumps(5)				
	i. Inert gas generator				
II	ACID SAMPLING				
	a. P.P.E.	3-12-82	DS	4-22 OK	6-4 OK
	b. Types of acid to be sampled (115, 107, 104.5, 99, 96, 93)	3-12-82	"	"	"
	c. Method	3-12-82	"	"	"

	JOB FUNCTION	DATE TRAINED	TRAINER	DATE, FOLLOW UP TRAINING COMMENTS	FINAL REVIEW AND COMMENTS
III	65% OLEUM				
	a. Process & Flow	3-12-82	DS	4-22 dlc	6-4 dlc
	b. Equipment & Function	3-12-82			
	c. How to put in service.	3-12-82			
	d. How to take out of service.	3-12-82			
	e. How to flush for maintenance.	3-12	DS		
	f. What to do for a 65% leak in pump or line.				
	g. What to watch during normal operation.				
IV	AIR COMPRESSORS				
	a. Process & flow	3-12	DS	4-22 dlc	6-4 dlc
	b. Equipment & functions				
	c. How compressors operate.				
	d. How dryers & filters operate.				
	e. Importance of dry air for inst. & other uses.				
	f. Housekeeping duties: change oil-sorb, wipe down.				
	g. Start up and shutdown procedures.				

	JOB FUNCTION	DATE TRAINED	TRAINER	DATE, FOLLOW UP TRAINING COMMENTS	FINAL REVIEW AND COMMENTS
III	65% OLEUM				
	a. Process & Flow	3-12-82	DS	4-22 dlc	6-4 dlc
	b. Equipment & Function	3-12-82			
	c. How to put in service.	3-12-82			
	d. How to take out of service.	3-12-82			
	e. How to flush for maintenance.	3-12	DS		
	f. What to do for a 65% leak in pump or line.				
	g. What to watch during normal operation.				
IV	AIR COMPRESSORS				
	a. Process & flow	3-12	DS	4-22 dlc	6-4 dlc
	b. Equipment & functions				
	c. How compressors operate.				
	d. How dryers & filters operate.				
	e. Importance of dry air for inst. & other uses.				
	f. Housekeeping duties: change oil-sorb, wipe down.				
	g. Start up and shutdown procedures.				

	JOB FUNCTION	DATE TRAINED	TRAINER	DATE, FOLLOW UP TRAINING COMMENTS	FINAL REVIEW AND COMMENTS
	h. Normal operating limits, air pressure, water temp.	3-12	DS	4-22 Dlc	6-4 Dlc
	i. Shutdown devices: high air temperature, low oil pressure.				
	j. Routine checks & duties.				
V	INERT GAS SYSTEM				
	a. Process & flows	3-12	DS	4-22 Fan	6-4 Fan
	b. Equipment & functions				unit 0.0-5
	c. Water flow				
	d. Uses of inert gas				
	e. Startup & shutdown of units.				
	f. Normal operating limits, gas & air pressure, inert gas discharge temp. & pressure drop on dryer & filters.				
	g. Routine checks & duties.				
VI	OLEUM/NITRIC VENT SYSTEM				6-4 Dlc
	a. Process & flow	3-12	DS	4-22 Dlc	
	b. Equipment & functions				
	c. Startup and shutdown				
	d. How to establish vacuum on tanks.				
	e. How to control #4 tower				

	JOB FUNCTION	DATE TRAINED	TRAINER	DATE, FOLLOW UP TRAINING COMMENTS	FINAL REVIEW AND COMMENTS
	h. Normal operating limits, air pressure, water temp.	3-12	DS	4-22 dlc	6-4 dlc
	i. Shutdown devices: high air temperature, low oil pressure.				
	j. Routine checks & duties.				
V	INERT GAS SYSTEM				
	a. Process & flows	3-12	DS	4-22 Fan	6-4 Fan
	b. Equipment & functions				unit 0.0-5
	c. Water flow				
	d. Uses of inert gas				
	e. Startup & shutdown of units.				
	f. Normal operating limits, gas & air pressure, inert gas discharge temp. & pressure drop on dryer & filters.				
	g. Routine checks & duties.				
VI	OLEUM/NITRIC VENT SYSTEM				6-4 dlc
	a. Process & flow	3-12	DS	4-22 dlc	
	b. Equipment & functions				
	c. Startup and shutdown				
	d. How to establish vacuum on tanks.				
	e. How to control #4 tower				

	JOB FUNCTION	DATE TRAINED	TRAINER	DATE, FOLLOW UP TRAINING COMMENTS	FINAL REVIEW AND COMMENTS
	f. How to control Brinks	3-12	DS	4-22 OK	6-4 OK
VII	NO. 4 BOILER	3-12	DS	4-22 OK	6-4 OK
	a. Process & Flow				
	b. Equipment & Function				
	c. How to fire boiler, control firing rate.				
	d. How to maintain water level & header pressure.				
	e. Chemical treatment.				
	f. How to shutdown.				
	g. What to watch during operation.				
VIII	NO 1 COOLING TOWER	3-12	DS	4-22 OK	6-4 OK
	a. Equipment functions & flow				
	b. Chemical treatment				
	c. Lubrication				
	d. What No. 1 tower supplies water to.				
IX	SPIT TARGETS & MIST TESTS	3-12	DS	4-22 OK	6-4 OK
	a. What they are & why we do them.				
	b. How to do stick test on abs. & dry tower.				
	c. Where spit targets are, how to change & how often to change.				

	JOB FUNCTION	DATE TRAINED	TRAINER	DATE, FOLLOW UP TRAINING COMMENTS	FINAL REVIEW AND COMMENTS
	f. How to control Brinks	3-12	DS	4-22 OK	6-4 OK
VII	NO. 4 BOILER	3-12	DS	4-22 OK	6-4 OK
	a. Process & Flow				
	b. Equipment & Function				
	c. How to fire boiler, control firing rate.				
	d. How to maintain water level & header pressure.				
	e. Chemical treatment.				
	f. How to shutdown.				
	g. What to watch during operation.				
VIII	NO 1 COOLING TOWER	3-12	DS	4-22 OK	6-4 OK
	a. Equipment functions & flow				
	b. Chemical treatment				
	c. Lubrication				
	d. What No. 1 tower supplies water to.				
IX	SPIT TARGETS & MIST TESTS	3-12	DS	4-22 OK	6-4 OK
	a. What they are & why we do them.				
	b. How to do stick test on abs. & dry tower.				
	c. Where spit targets are, how to change & how often to change.				

	JOB FUNCTION	DATE TRAINED	TRAINER	DATE, FOLLOW UP TRAINING COMMENTS	FINAL REVIEW AND COMMENTS
X	VALVE ALIGNMENT				
	a. How to align feed & product tanks.	3-12	DS	4-22 dlc	6-4 dlc
XI	ASSIST NO.1, NO.8, & UTILITIES OPERATORS	3-12	DS	4-22 dlc	6-4 dlc
	a. Normal operations				
	b. Startup Duties 1.Sulfur pump operation 2.No.8 boiler control				
	c. Shutdown Duties				
	d. Emergency Duties 1.Oleum spill 2.Power failure 3.Low steam header				
XII	STICK GAUGE TANKS				
	a. How to do and why			4-22 dlc	6-4 dlc
XIII	HOUSEKEEPING				
	a. Control room; desks, lab, kitchen, locker room	3-12-82	DS	4-22 dlc	6-4 dlc
	b. Unit; hoses, cords, rugs, oil lockers, trash.	3-12-82	DS		
XIV	EMERGENCY DRILLS				
	a. Safety equipment	3-19-82	DS	4-22 dlc	6-4 dlc
	b. Duties	3-19-82	DS		

	JOB FUNCTION	DATE TRAINED	TRAINER	DATE, FOLLOW UP TRAINING COMMENTS	FINAL REVIEW AND COMMENTS
X	VALVE ALIGNMENT				
	a. How to align feed & product tanks.	3-12	DS	4-22 ok	6-4 ok
XI	ASSIST NO.1, NO.8, & UTILITIES OPERATORS	3-12	DS	4-22 ok	6-4 ok
	a. Normal operations				
	b. Startup Duties 1.Sulfur pump operation 2.No.8 boiler control				
	c. Shutdown Duties				
	d. Emergency Duties 1.Oleum spill 2.Power failure 3.Low steam header				
XII	STICK GAUGE TANKS				
	a. How to do and why			4-22 ok	6-4 ok
XIII	HOUSEKEEPING				
	a. Control room; desks, lab, kitchen, locker room	3-12-82	DS	4-22 ok	6-4 ok
	b. Unit; hoses, cords, rugs, oil lockers, trash.	3-12-82	DS		
XIV	EMERGENCY DRILLS				
	a. Safety equipment	3-19-82	DS	4-22 ok	6-4 ok
	b. Duties	3-19-82	DS		

	JOB FUNCTION	DATE TRAINED	TRAINER	DATE, FOLLOW UP TRAINING COMMENTS	FINAL REVIEW AND COMMENTS
XV	a. Know what safety equipment is needed to do job duties.	3-12	DS	4-22 ok	6-4- ok
	b. Multiple lockout procedure	〃	〃	4-22 ok	6-4 ok
XVI	GENERAL KNOWLEDGE				
	a. No. 1 & No. 8 unit.	3-10-82	DS	4-22 Fair	6-4 Fair
	b. 1500 & 5000 KW GENERATORS	3-10-82	〃	〃	〃
	c. Demineralizer System	3-10-82	〃	〃	〃
	d. Power Distribution	3-10-82	〃	〃	〃

	JOB FUNCTION	DATE TRAINED	TRAINER	DATE, FOLLOW UP TRAINING COMMENTS	FINAL REVIEW AND COMMENTS
XV	a. Know what safety equipment is needed to do job duties.	3-12	DS	4-22 ok	6-4- ok
	b. Multiple lockout procedure.	〃	〃	4-22 ok	6-4 ok
XVI	GENERAL KNOWLEDGE				
	a. No. 1 & No. 8 unit.	3-10-82	DS	4-22 Fair	6-4 Fair
	b. 1500 & 5000 KW GENERATORS	3-10-82	〃	〃	〃
	c. Demineralizer System	3-10-82	〃	〃	〃
	d. Power Distribution	3-10-82	〃	〃	〃

Name Robert Brown Job Title #8 Operator

Check the appropriate boxes to indicate the following:

D = Demonstrate; W = Written; V = Verbal; P = Pass; F = Fail

No.	D	W	V	Job Procedures/Job Aspects	P	F	Date
1	✓			Unit Startup Procedure	✓		11-2012
2	✓			Unit Shut Down Procedure	✓		"
3	✓			Oleum Tower Startup Procedure	✓		"
4	✓			Diluter Startup Procedure	✓		"
5	✓			#8 Boiler and Cooling Tower Water Tests	✓		"
6	✓			Unit Heat Up Procedure	✓		"
7			✓	Unit Emergency Alarm and Shutdown Procedure	✓		"
8			✓	Unit Critical Operating Parameters	✓		"
9			✓	Unit Interlock Matrix	✓		"
10			✓	Emergency Scenarios	✓		"
11			✓	Permit Limits	✓		"
12			✓	Unit Safety Rules and PPE Requirements	✓		"
13			✓	Life Critical Permit Procedures	✓		"
14		✓		Written Test	✓		"

Overall Performance: (Circle One) (Pass) Fail

Evaluator's Comments: _____

Trainee's Comments: Good Knowledge base demonstrated

Trainee's Signature: _____ Date: _____

Evaluator's Signature: Jim Worden Date: 12-7-2012

Demonstrate	The Operator will either perform or demonstrate how to perform the procedure
Verbal	The Operator will verbally answer the questions based n the procedure
Written	The Operator will take the final written exam
Pass	Greater than or equal to 80% of the answers are correct
Fail	Less than 80% of the answers are correct

Name:_____

#8 Operator Recertification Test

1. List the PPE required for starting a piece of equipment, after maintenance has worked on it, where a potential for acid exposure could occur?

2. What is the Mastercard permit system and why do we use it?

3. List five critical operating parameters (COP's), the critical set points, what may cause the condition and your response? (Be brief)

4. Describe the steps in order, how to bring the unit up to full production after a short shutdown?

5. List the #8 operating permit limits?

6. Describe the procedure on how to feed 20% Oleum on the Oleum tower to make 30%?

7. The sulfur pump stops and will not restart and the spare is out of service. What would be your response?

Robert Brown #8 11/4/2012

① Slicker Pants & Coat, Rubber Boots, Rubber Gloves, Eye goggles, Face shield, Hard.

② A form used to document a lock-out tag-out. To ensure equipment is safe to work on and all energy is removed. Prevent personal injuries to equipment & personnel while working on equipment.

③ Absorber Low Slow or turbine trip, trip sulfur flow low flow regain sulfur flow. ② Low water in Boiler, regain flow or shut down on either or blow pumps. ③ High SO^2 in scrubber, loss of caustic flow, not in manual for caustic. ④ Scrubber low flow or no flow to vent, try to restart or switch pumps. ⑤ Acid envilizer high on pump tank, find out why low flow on water.

Blowers trip's.

④ D. Da Boiler trips, Run sulfur in Bonnet, start Condenser Fan & Pups for Vacuum, open Exh valve, have both Drying towers & Absorber towers Running, C.I.L's in By Pass, Have Lab sample for strength.

⑤ SO^2 for 325 @ 3 Hr short term SO^2 - 3.0 ppm Long 1.7 ppm SO^2 Opacity 16% for 10 min, Production @ 2650 tn/day

Robert Brown #3 11/4/2012

⑥. Line up to Take To D pump To O.F.L Close off PRODUCT To Blow Down open O.F.L To Steam Regulate water on C.I.L as Needed watch Blow down for strength & Heat & Cooling.

⑦. Try to restart pump or switch pumps, If nothing will happen secure UNIT.

⑧. Keep C.I.L's & Boiler tubes for scaling, ~~corroding~~ corroding, Tubes leaks, Falling in TUBES, ONCE Each shift.

⑨. Opacity would start to rise, High Boiler water usage, higher Steal temperatures on DCS, Have opacity checked out ok, notify management of Results, Prepare for shut down of UNIT.

⑩. EMINSSIONS or Vapor in Stack, Possibly steam Leak in Superheaters, Boiler TUBE, Economizer, Isolate problem area & fix if possible, if not Prepare for Unit shut down.

⑪. Blow BACK Line To A.W.T. Line up Blow To Recirculation start Blower fan, open Control valve, start And pump @ drying tower, start Peroxide pump to pump tank, open valve at Top of Pump tank & @ Bottom of pump tank Call Roy? for Control.

Robert Brown #6 11/4/2012

(12). Call up on D.C.S. screen a caustic control switch either Ph control or SO^2 control, To calibrate probes.

(13) Low water flow over Tower 4600 GPM. High SO^2 above 800ppm for 1min, Low water level in Tower, High temp in Tower, high water level in Tower 79°C.

100%

Robert Brown

#8 Operator Test

✓ 1. Explain the purpose and function of the following items:

- Blower Force Oxygen & Gas through the system.
- Drying Tower Remove Moist Air that is force into the system.
- Furnace Unit to Burn sulfur.
- #1 Boiler Heat exchanger for gas flow cool the gas stream.
- Converter Convert SO^2 to SO^3
- #2 Boiler Heat exchanger to cool gas flow.
- Economizer Heat exchanger to cool gas flow using water in Tube.
- Absorbing Tower Absorb the gas into the liquid Acid strength.
- Brinks To Eliminate Acid Mist To Atmosphere

✓ 2. Explain the purpose and the function of these parts of the steam system:

- Steam Drum Collect steam at high pressure
- Deaerator Remove Air from Demin water & non condensables.
- Non-Return Valve Let steam Flow in only one direction.

✓ *3. What are your responsibilities during a normal plant shutdown?

✓ *4. What are your responsibilities during an emergency shutdown?

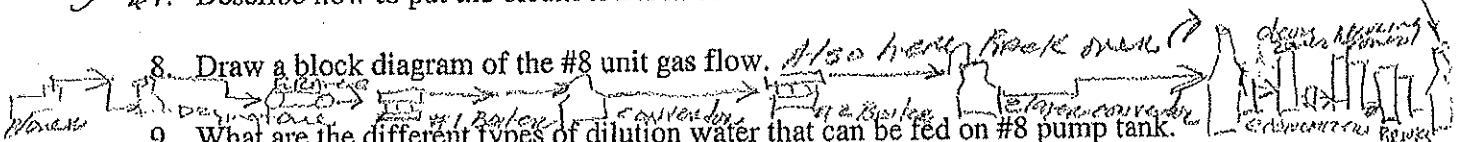
✓ *5. Describe how #8 production rates are maximized via the SO_2 TPD.

✓ 6. What is the permit limit for stack opacity? SO_2

550 PPM for 1 min, or 3 LBS/Ton for 3 HR AVG, or 1.7/Ton 24 HR AVG, or 325 LB/HR AVG for 100 hr per year and opacity 10% for 6 min Avg.

✓ *7. Describe how to put the oleum tower in service to 77 tank.

8. Draw a block diagram of the #8 unit gas flow.



9. What are the different types of dilution water that can be fed on #8 pump tank.

Groundwater, process water, Demin water,

10. List the interlocks that will trip #8 unit.

High Furnace temp, closed fan valve, High Blower pressure, Blower vibration, Low oil pressure ... Low flow on Absorber flow, low Boiler level, low Deae level, high SO^2 AVG.

✓ 11. What is the maximum inlet acid temperature to the acid coolers?

Absorb tower 195° HH 235° Dry tower 195° HA - HH 235°.

12. At what temperature do you turn off the anodic protection on the acid coolers?

Shut down when you have no flow.

*13. Explain what you would do if power could not be restored after a power failure.

✓ 14. What is the approximate strength of the acid that is circulating over the absorbing tower? Drying tower?

98.5 - 98.9%

15. Explain what steps are necessary each time you open the bus tie, close the bus tie.

Have plant load on the 5000, Have one side save on sink w/ autoodule position [illegible] the 1 in sink

16. Describe how to put the diluter in service to 23 tank.

17. Describe what steps are necessary to switch feed on the oleum tower from product to18 storage.

18. How do you adjust the amps on the sulfur pumps?

Open and close Back on the aux line to sulfur tank,

19. How could you tell if you had tube in the 65% oleum vaporizer?

High operating temperature on Reboiler, low Ph on the tower.

20. The #8 stack opacity is suddenly rising. What are the possible causes and what action do you take? What do you do if the opacity continues to rise?

Possible leak in sulfur gun or boiler tube leak

Leak in economizer tube.

If opacity is >10% for 5min would need to shutdown and find cause,

Question # 3 & 4

✓ What are your responsibilities during normal plant shut down?

1. Notify supervisor and plant.
2. Close off sulfur flow & block in sulfur valves open steam to the pumps. Drain sulfur to [illegible].
3. Close off water to the pump tank & monitor acid strength & level in pump tank.
4. Place M.G.B in manual & place in 0 RPM.
5. Close furnace Air Valve.
6. Shut down drying tower pumps leave absorbing tower on if possible, also shut down product pumps.
7. Start boiler feed water pump (E/C) maintain water level in boiler & deaerator.
8. Shut down condenser fans & pumps, close off steam ejectors.
9. Shut down oleum tower, and feed to the tower. Also [illegible] pumps and water feed.
10. Cooling water fans C.I.L'S and fans after cool down.
11. Close #1 & 2 boiler valves.
12. Check oil pumps for M.G.B.

What are your responsibilities during emergency shut down?

1. All the above & and determine the cause of this situation. Acid flows, cooling issues, electrical issues, water leak trips.
Monitor boiler level, acid level, strength.

Question #5

How to burn #6 Production rates via SO^2 limits.

1. ① Will need Hand samples for Lab, Check strength.
2. ② Notify supervision I have start-up copies.
3. ③ Do Temp check for lower water boiler interlocks & SO^2 & Opacity shift checks.
4. ④ Have steam on 480 header-up.
5. ⑤ Start Drying forcer & Absorbing tower pumps.
6. ⑥ Start condenser fans & pumps
7. ⑦ Establish steam ejectors for M.G.B. Have to 600 RPM Open 8" valve, Set M.G.B. in Auto on D.C.S.
8. ⑧ Open one soot gun & close steam on gun.
9. ⑨ Monitor SO^2 & Opacity on Stack/scrubber, Pump tank level & Hand strength. Boiler level Monitor Convector temp for #1 inlet & exit. 500° inlet 1100° out temps.
10. Monitor Hood temperatures & for C.T.L.S. start cooling pumps when needed, also fans when needed.
11. ⑫ Would need to monitor SO^2 on scrubber 500ppm/1 min trip, R 3 LB/Hr on 3 Hr Avg or 1.7 lb/hr for 24 Hr Avg or 325 LB/1 Hr Avg. and Opacity greater than 10% for 5 min Avg.

Question #7

Oleum towers in service - 77 tank.

1. Determine where you will get your feed. Line-up to oleum towers.

2. Start Boost pump into C/L Boiler mix towers. Check flow & Purge.

3. Start H2O pump for water flow. Cooling & fan for cooling water.

4. Open 48" valve for gas flow for acid strength. Lined-up 98% Acid fill to maintain oleum strength.

5. Open chain valve to 77 tank close chain valve to 15 tank & 31.

6. Open control loop for oleum storage. Maintain Oleum strength in towers.

Question # 13

What To Do after Power failure?

1. ① Notify supervisition of event.
2. ② Close NON-return Valve for Boiler #1 / #2
   Exit valve on Boiler.
3. ③ Close water to pump tank.
4. ④ Block suthe to Furnace,
5. ⑤ Open steam valves to Suthe Gens.
6. ⑥ Manuley Close Hand valve that may leed By,
7. ⑦ Monitor Boiler water level.

Question #16

How to put the diluter in service to 23 tank.

① Will need to establish where you will get your feed and, But mostly off drying hopper.
Close off all drains that have been opened.
Line up north/south feed pump
② Line-up water for exchangers.
③ Line-up demin water for mixing tee.
④ Control valves in manual & reset on DCS.
⑤ After feed is flowing start water pump.
⑥ Watch temp rise on mixing tee
⑦ Close all others valve to storage & have 23 tank level-up on top of tank monitor level in tank.

Name Ed Glasscock Job Title Lead Operator

Check the appropriate boxes to indicate the following:

D = Demonstrate; W = Written; V = Verbal; P = Pass; F = Fail

No.	D	W	V	Job Procedures/Job Aspects	P	F	Date
1	X			Unit Startup Procedure			8-2012
2	X			Unit Shut Down Procedure			"
3	X			Oleum Tower Startup Procedure			"
4	X			Diluter Startup Procedure			"
5	X			#8 Boiler and Cooling Tower Water Tests			"
6	X			Unit Heat Up Procedure			"
7			X	Unit Emergency Alarm and Shutdown Procedure			"
8			X	Unit Critical Operating Parameters			"
9			X	Unit Interlock Matrix			"
10			X	Emergency Scenarios			"
11			X	Permit Limits			"
12			X	Unit Safety Rules and PPE Requirements			"
13			X	Life Critical Permit Procedures			"
14		X		Written Test			"

Overall Performance: (Circle One) (Pass) Fail

Evaluator's Comments: Excellent knowledge of units —

Trainee's Comments: _____

Trainee's Signature: N/A Date: N/A

Evaluator's Signature: Jerry Woods Date: 11-2012

Demonstrate	The Operator will either perform or demonstrate how to perform the procedure
Verbal	The Operator will verbally answer the questions based n the procedure
Written	The Operator will take the final written exam
Pass	Greater than or equal to 80% of the answers are correct
Fail	Less than 80% of the answers are correct

Name: Ed Glasscock

#8 Operator Recertification Test

1. List the PPE required for starting a piece of equipment, after maintenance has worked on it, where a potential for acid exposure could occur? Full red suit, rubber boots, rubber gloves Hardhat, face shield, safety glasses, hood

2. What is the Mastercard permit system and why do we use it? A form used to document Lockout/tag outs. The purpose is to make sure that equipment is safely secured & de-energized to prevent injuries and equipment damage during maintenance operations.

3. List five critical operating parameters (COP's), the critical set points, what may cause the condition and your response? (Be brief) ① Hi scrubber level, 90%, stripper trips out ② Blower air flow at brinks low. Alarm @ 2" - blower trip, tower packing collapse, acid induct. shutdown & secure unit. ③ Low boiler water level - alarm @ 25% - level control valve failure, tube leaks, feedwater pump shutdown, economizer tube leak - Trip unit, get water into boiler asap, close non return valve if needed. ④ ABS pump low flow <4800gpm - low steam, turbine trip, suction plugged - Make sure unit is correctly lined up. Trip checks. Vacuum. ABS turbine running. Roll blower & bring up to 500 rpm. Start drying tower pump. Get scrubber in service. Monitor SO_2 @ stack

4. Describe the steps in order, how to bring the unit up to full production after a short shutdown?

5. List the #8 operating permit limits?

Short term SO_2 limit: 3.0 SO_2/ton acid produced.
Long term SO_2 limit = 1.7 SO_2/ton acid produced.
Acid Mist limit: .15/ton acid produced
Opacity < 10% average for 5 minutes
Max production rate 2600 tpd

SO_2	325.83 #/hr	806.65 tons/yr
NO_x	14.65 #/hr	43.07 tons/yr
CO	5.87 #/hr	7.96 tons/yr
Acid Mist	16.25 #/hr	71.18 tons/yr

6. Describe the procedure on how to feed 20% Oleum on the Oleum tower to make 30%?
Set the 84" & 48" valves as desired. Adjust cooling water as desired. Line up 20% oleum through the operator feed line to the oleum tower. Switch feed from product to oleum at the oleum tower feed loop. Monitor strength & level of tower & make adjustments as necessary. Ensure oleum is lined up to 77 tank.

7. The sulfur pump stops and will not restart and the spare is out of service. What would be your response? Shutdown & secure the unit

Name:_____

65%/UP Operator Recertification Test

1. List the PPE required for starting a piece of equipment, after maintenance has worked on it, where a potential for acid exposure could occur? Hard hat, face shield, goggles, full slicker Rubber boots, rubber gloves, Hood

2. What is the Mastercard permit system and why do we use it? A system for documenting lockouts/Tagouts to ensure that equipment is safely secured & de energized prior to maintence to prevent equipment damage or injuries

3. What condition can occur at unit 8 that could shut 65% and UP down?
Low #250 steam header. Power failure.

4. What is the indication of a tube leak in the 30% vaporizer?
Vaporizer temperature & pressure spike. Low ph in coil basin.

5. List the interlock valves in the 65% Oleum emergency shutdown system?
Steam control valve & interlock valve.
30% Oleum feed control valve & interlock valve.

6. How should you flush the 65% system for maintenance? Drain system to 20% pup tank & pump out. line up flush acid to 30% feed line. line up unit but close last valve into 20% pump tank. Close chain valve into gas line to TKup & open gas valves to 74 tank. Run acid through unit filling it up so vaporizer overflows into gas line then into 74 tank. Check for fuming acid at sample point to ensure system is completely flushed of fuming acid. Shutdown flush acid & open drains to 20% pup tank & pump out system.

7. How can you prevent the 65% coils from freezing?
Keep water on the coils at all times and drain coils whenever unit is down

8. Describe how to purge the evaporator? Make sure chain valve in purge line from evaporator is open. Open FC0017 as desired. Monitor purge tank level & temp. Allow purge flow into purge tank as level & temp permit. Adjust cooling water to purge tank if needed

#8 Operator Recertification test Cont.

3) discharge or suction valves closed, line break. Shutdown & secure unit. ⑤ ABS acid strength 99.1% to 99.4% - analyzer failure, loss of flow to analyzer, controller left in manual, loss of water to pump tank. Correct cause of strength deviation if possible, check sample flow & pull samples to check strength. Shutdown & secure unit if strength exceeds 99.9%.

UP Test

#10 Cont. - Place bottle in overpack. Good samples are critical in order to verify the quality of the product.

9. What happens if you fire the pkg boiler too fast?
It can trip out

10. Describer how to control the 450/250/125 headers. What is priority? What does each affect? Be specific? The #450 header has a control valve & manual waste valve used to hold header @ #450. Excess steam in the #450 is dumped into the #250. The #250 header has a waste dump valve that maintains the header at #250. The #125 header is fed from the 450 via the #125 control valve. #450 is priority. 450: Blower, 5000 kws, jet ejectors, SDFW pump, ABS turbine 250: 1500 kw 65/kpup. #125 steam tracing

11. When should you open the bus tie? When should you switch panels form the generator bus to the Utility bus? During fast weak. Swap panels to the utility bus anytime the 5000 goes down or can't supply power for the plant

12. When should you close the 2nd tie line?
when the #5 unit trips out or the 5000 kw goes down

13. How many kw's can the plant carry without the risk of blowing a weak fuse?
Max kw load is 3800 kw.

Name _____ Job Title _____

Check the appropriate boxes to indicate the following:

D = Demonstrate; W = Written; V = Verbal; P = Pass; F = Fail

No.	D	W	V	Job Procedures/Job Aspects	P	F	Date
1				Unit Startup Procedure			
2				Unit Shut Down Procedure			
3				Oleum Tower Startup Procedure			
4				Diluter Startup Procedure			
5				#8 Boiler and Cooling Tower Water Tests			
6				Unit Heat Up Procedure			
7				Unit Emergency Alarm and Shutdown Procedure			
8				Unit Critical Operating Parameters			
9				Unit Interlock Matrix			
10				Emergency Scenarios			
11				Permit Limits			
12				Unit Safety Rules and PPE Requirements			
13				Life Critical Permit Procedures			
14				Written Test			

Overall Performance: (Circle One) Pass Fail

Evaluator's Comments: _____

Trainee's Comments: _____

Trainee's Signature: _____ Date: _____

Evaluator's Signature: _____ Date: _____

Demonstrate	The Operator will either perform or demonstrate how to perform the procedure
Verbal	The Operator will verbally answer the questions based n the procedure
Written	The Operator will take the final written exam
Pass	Greater than or equal to 80% of the answers are correct
Fail	Less than 80% of the answers are correct

Pass

#8 Operator Test

1. Explain the purpose and function of the following items:

   - Blower
   - Drying Tower
   - Furnace
   - #1 Boiler
   - Converter
   - #2 Boiler
   - Economizer
   - Absorbing Tower
   - Brinks

2. Explain the purpose and the function of these parts of the steam system:

   - Steam Drum
   - Deaerator
   - Non-Return Valve

3. What are your responsibilities during a normal plant shutdown?

4. What are your responsibilities during an emergency shutdown?

5. Describe how #8 production rates are maximized via the SO_2 TPD.

6. What is the permit limit for stack opacity? SO_2

7. Describe how to put the oleum tower in service to 77 tank.

8. Draw a block diagram of the #8 unit gas flow.

9. What are the different types of dilution water that can be fed on #8 pump tank.

10. List the interlocks that will trip #8 unit.

11. What is the maximum inlet acid temperature to the acid coolers?

12. At what temperature do you turn off the anodic protection on the acid coolers?

13. Explain what you would do if power could not be restored after a power failure.

14. What is the approximate strength of the acid that is circulating over the absorbing tower? Drying tower?

15. Explain what steps are necessary each time you open the bus tie, close the bus tie.

16. Describe how to put the diluter in service to 23 tank.

17. Describe what steps are necessary to switch feed on the oleum tower from product to18 storage.

18. How do you adjust the amps on the sulfur pumps?

19. How could you tell if you had tube in the 65% oleum vaporizer?

20. The #8 stack opacity is suddenly rising. What are the possible causes and what action do you take? What do you do if the opacity continues to rise?

Ed Glasscock
10/28/04 #1 Operator Test

① Blower - generates the gas flow for the unit. Draws in air from the atmosphere and pushes it thru the unit where it is converted ultimately into SO_3 which is used to make acid.

Drying tower - This is where air drawn in from the atmosphere is dried. Sulfuric acid from the pump tank is recirculated over the top of the drying tower while air is pushed up from the bottom out the duct at the top. The acid absorbs the moisture in the air.

Furnace - This is where sulfur is burned to create SO_2 gas.

#1 Boiler - Is used to control the temperature of the 1st layer of the converter. Waste heat is converted into steam for use throughout the plant.

Converter - This is where the SO_2 gas is converted to SO_3 gas by passing it through layers of vanadium pentoxide catalyst.

#2 Boiler - Is used to control the temperature of the second layer of the converter. Again, waste heat is converted into steam for use throughout the plant.

Economizer - This where the gas stream is cooled and the boiler feedwater is preheated. The economizer is in effect a large exchanger.

Absorbing tower - This is where the SO_3 gas stream passes up through acid which is recirculating over the tower, fortifying the acid.

Brinks - This is where acid mist is removed from the gas stream before moving on to the stack.

② Steam drum - This is the top drum of the boiler where boiler water is boiled off into steam for use throughout the plant.

Deaerator - This is where air is removed from the boiler water which could cause pitting or damage to the boiler. Also, the water is preheated and treatment chemicals are added in the deaerator.

Non-return valve - This valve is located on the steam header at the exit of the steam drum. It is open during normal operation but during upset conditions when you can't get water into the boiler it is closed to ensure a water level remains in the boiler.

③ To secure the unit with the shutdown checklist. Trip blower. Put appropriate controllers in manual & closed. Block in sulfur at furnace, put steam on guns. Block in water to the pump tank. Shut down #6 cooling tower & chemicals. Shutdown drying tower pump. Close boiler exits. Close drying tower valve. Shutdown condenser. Shut down & secure oleum tower. Shutdown product pump. Block in acid to #6 cooling tower. Drain acid coolers. Close 84% valve. Secure diluter. Switch to electric boiler feedwater pump.

④ Same as #3 plus assist utility operator with steam as necessary, monitor boiler steam drum level. Close non-return valve if necessary. Monitor stack emissions.

⑤ Monitor SO_2 TPD allowable vs average reading on emissions screen on computer. The average must stay below the allowable. When the average comes within 1 TPD of the allowable it will turn yellow indicating that you are approaching the allowable limit and giving you time to make adjustments. You may increase or decrease blower speed or furnace temperature as necessary to maintain emissions within allowable limits. Increasing blower speed or furnace temperature increases the production rate.

⑥ <20% for 5 minutes <3500ppm for 5 minutes

⑦ Start oleum circulation pump. Set 84% valve as desired. Line up water to CIL cooler. Line up product feed to tower. Line up to 77 storage. Adjust acid inlet temperature to 100°F to 110°F, 45°F across tower is maximum production. 1200 TPD is maximum to storage rate. Start amatrol.

⑧ See last page

⑨ Deepwell water, Demin water & process water.

⑩ MGB ESD hand switch
MGB lo lo oil pressure
MGB lo lo chest pressure
MGB hi vibration (2 or more dangerites)
MGB hi discharge pressure 280°
Trip throttle valve closed
Furnace temp > 1900°F
D.T. Air valve
Woodward governor tripped
Abs tower low flow 4800ppm Sulfur Trip
Abs tower low flow 3440ppm Unit trip
Sulfur inlet valve closed
ESD hand switch in control room
Boiler lo lo level switch
Steam drum lo level < 10%

(11) 195°f

(12) 120°F

(13) Secure unit, monitor boiler level, close non-return valve if necessary - blowdowns

(14) 99.4 to 99.8 Abs 98.5 to 99.0 drying tower

(15) Open - fire package boiler, back down 5000 kwg to plant load, trip bustie

Close - In switch gear room, make sure all synch scopes are off, Bus tie breaker only scopion, synch in @ 12° clock portion, Bus tie breaker synch scope to off

(16) line up diluter to 23 tank. Put all controllers in manual and closed. Push diluter reset. Line up acid to diluter and establish flow. Line up dilution water and start dilution water pump. Line up cooling water. Set controllers as desired. Wear ppe when lining up to 23 tank and acid feed to diluter

(17) Slow back blower as needed, open 84" valve as desired, Make adjustment on cooling water to CIL as necessary. Line up 18 tank on operator feed line to oleum tower feed loop Block in product feed, line up CIL to tower. Monitor strength and temperature in control room.

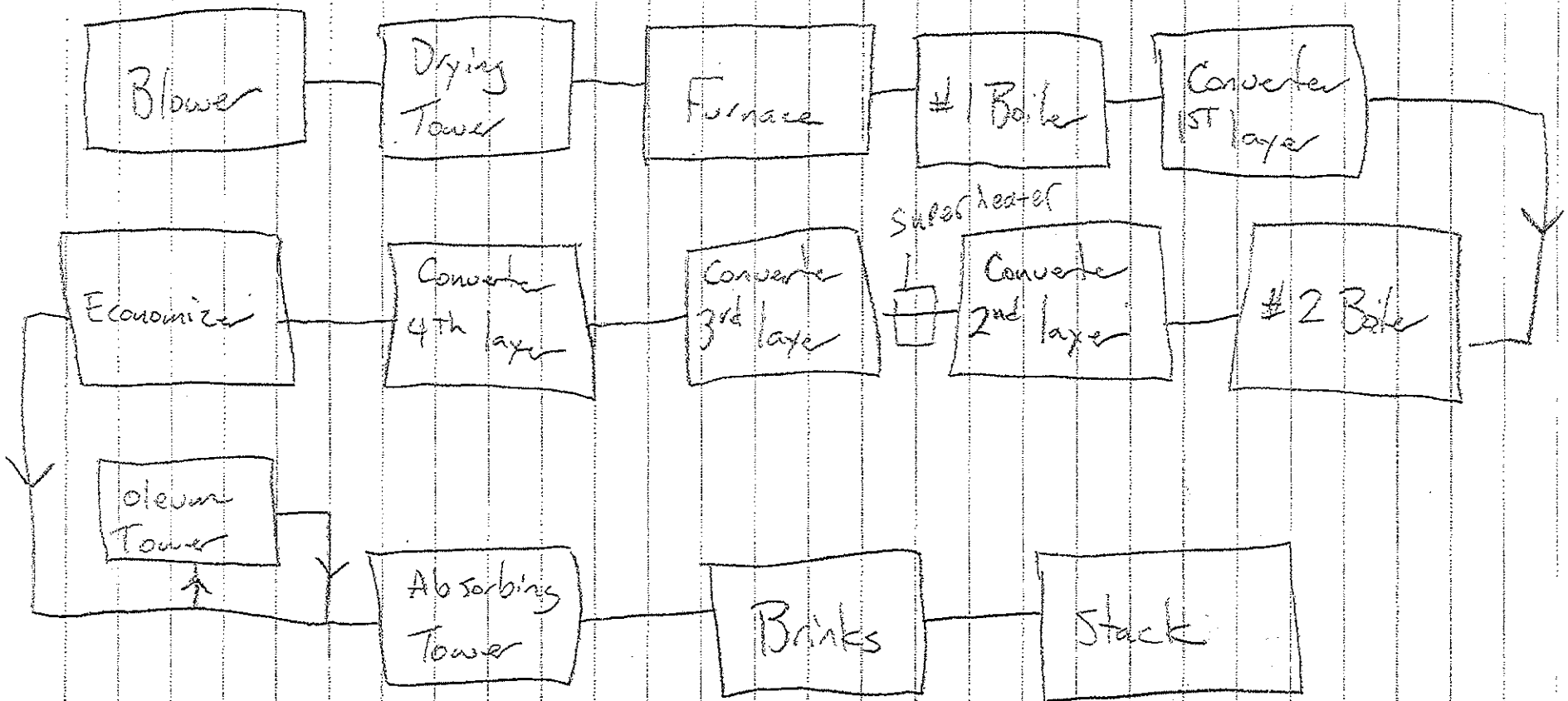
(18) Opening or closing the recirc valve. Opening = more flow = more amps. 28 to 30 amps is desirable

(19) Sudden temperature or pressure rise in the vaporizer, low ph in 208 coil basin. boiler tube leak?

(20) Causes - Steam leak on sulfur gun, leak in economizer check drains for water, low acid temperature in pump tank.

Corrective action - block in steam to gun (should already be closed) Turn off fans and or pumps on #8 cooling tower, if you can't stop

rise cut off sulfur. You may have to shut unit down if the rise continues.


Blower
Drying Tower
Furnace
1 Boiler
Converter 1st layer
Superheater
Economizer
Converter 4th layer
Converter 3rd layer
Converter 2nd layer
2 Boiler
oleum Tower
Absorbing Tower
Brinks
Stack

Section III – ATTACHMENTS

1. **Process Description and corresponding Process Flow Diagrams**
2. **Current RMP Submittal**
3. **Facility Management System**
4. **Operating Procedures and Certifications**
5. **Operator Training Records**
6. **Compliance Audits**
7. **Exit Briefing Sign-In Sheet**
8. **Hot Work Permits**
9. **Process Chemistry (CBI) and Maximum Intended Inventory (CBI)**

Rhodia

North American HSE SERVICES

To: B. McConnell Date: October 31, 2012

From: G Baran Subject: **Houston site 2012 PHMP-FSA Report**

The Rhodia Process Hazard Management Program (PHMP) Facilitated Self-Assessment (FSA) was conducted at the Houston site during September 4th, 5th, and 6th, 2012 by George Baran and Lou Higgins. This report summarizes the assessment. This FSA constitutes the OSHA-PSM and EPA-RMP compliance audit for the site, and certification of the evaluation of compliance with the requirements of these regulations.

The FSA covered the entire plant both covered and non-covered areas. The audit consisted of a review of the files (policy, documentation & procedures) including the last FSA in 2009 plus discussions with employees and plant supervision (Bill McConnell, Rob Stafford, Chester Farmer, Brett Jacks, Floyd Dickerson, Keith Praytor, Chad Smith, Drew Foster, and James Shaw) on PHMP issues and inspection of the sites maintenances files with John Willis and Steve Szabo.

The Houston site received a score of 95 acceptable PHMP items out of 129 PHMP items with 31 items needing improvement and 3 unacceptable items. The detailed FSA results can be found in the attached spreadsheet below.

PHMP_FSA_Hou2012-09-05.xls

Audit Results

The results are present in two categories (findings, and recommendations) and identify the key areas where the site should focus to enhance its process safety program. The unacceptable items are highlighted. An action plan should be developed in a timely manner to address the findings.

Findings: Those required to comply with OSHA-PSM and EPA-RMP regulations
Recommendations: Those required for complying with Rhodia PHMP requirements only,

Findings (OSHA-PSM and EPA-RMP/CalARP requirements):

Process Safety Information – Chemicals

3.1 The current maximum inventories for chemicals in the process unit were not available for TS. A list needs to be compiled.

Process Safety Information – Technology

4.1 Block flow diagrams were unavailable for the oleum vaporizer. A diagram needs to be developed.

4.3 A chemical material of construction matrix needs to be developed for TS.

Process Safety Information – Equipment

5.2 Transfer of project files from engineering to the plant needs improvement.

Equipment files are missing on the TS risk 1 mitigation changes (valves and instruments installed), Regen 2 vapor combustor (seal pot and vapor combustor) and on the new sulfur tank vent changes to T-802.

5.3 TXUP P&IDs could not be found Need to determine and document electrical classification for the logistic barges and storage tanks.

5.8 Unable to find safety relief valve sizing for TS nitrogen relief valve and TS tank vacuum relief valves. Continue work of relief valve sizing throughout the plant

5.9 **Unable to find SIL calculations for any safety interlocks**.

5.10 Develop a complete written functional description of all safety system (SIS) in laymen terms including logic, computer code, and code function.

5.11 Develop a complete written functional descriptions of all safety interlocks in laymen terms.

Process Hazard Analysis (PHAs)

6.6 Unable to find PHAs for Regen 2 oleum before 2009. Check the files based on the 2009 PHA it was conducted in 2004.

6.7 Action tracking on PHA action items, recommendations, and human factors needs improvement. 65% oleum, Unit 8 oleum, TS, and Regen 2 oleum PHAs need follow-up on PHA items listed above.

6.10 PHA result need to be reviewed with affected personnel and documented.

Standard Operating Procedures (SOPs)

7.1 SOPs need to be updated to new format to meet regulations. Complete P&ID updating. Shutdown procedures must document personnel authorized to shutdown the unit. This is lacking in the Regen, Logistics, TS, and TXUP procedures.

7.2 **SOPs need to be certified annually. Certifications could not be found**.

7.3 COPs for TS and Logistics oleum need to documented in the SOPs

Training

8.3 Employee refresher training must be conducted every three years. Records could not be found in several areas (TS and logistics oleum). Check all area and conduct refresher training as needed.

8.4 Employees must be consulted on refresher training and this needs to be documented. No documentation exists.

8.5 All training must include the name of the instructor and the means used to verify the training was understood (tests results with a grade not pass or fail)

Contractors

9.6 Contractor evaluations are not be completed by engineering and only one was done by maintenance on the last turnaround. More contractor safety evaluations need to be completed.

Pre Start-up Safety Review (PSSR)

10.5 No records could be found that employees and plant supervision were trained on the pre start-up safety reviews.

10.7 No follow-up (action tracking) on B items identified on PSSRs. A items identified on the PSSR are required to be completed prior to start-up

10.10 Expand use of PSSR to include all physical equipment and instrument changes

Management of Change (MOCs)

11.7 Several temporary MOCs are open past due dates. Make sure all temporary MOCs are not open beyond identified dates.

Mechanical Integrity

12.3 Transfer of engineering files to the plant needs improvement. Files on instrumentation could not be found for new projects (TS risk1 mitigation changes, Regen 2 VCU project and new sulfur tank project)

12.4 Transfer of engineering files to the plant needs improvement. Equipment specification files are not complete to covered area. Unit equipment files were missing in all areas. The files need to be reviewed for completeness and updated accordingly.

12.9 Document missing on initial testing missing or inadequate on 4 projects checked (TS risk 1 modifications, barge vent testing, VCU redesign, and the new sulfur tank project) barge Improvements are needed in interlock and alarm testing. None of the units have DCS interlock or alarm testing records except TXUP

Incident Investigations

14.3 Action items on incident investigation not tracked to completion. Open items from incident investigations need to be tracked.

Compliance Audits (FSA)

16.4 All action items from the 2009 FSA have not been completed. Open items need to be tracked to completion.

Recommendations (Rhodia PHMP requirements):

Safety File Management Systems

1.4 The safety file system needs to be updated with current information and locations of electronic files.

1.7 The site needs to expand the use of the action tracking database to include PHA action items, recommendations, human factors and sitings findings, plus open PSUSR items and MOC items.

Process Safety Information - Equipment

5.4 Unable to find electrical classification drawings for spent acid. Other drawings found need updating.

Pre Start-up Unit Safety Review (PSSR)

10.8 No documentation could be found that results of PSSRs were communicated to Affected. Document communication of PSSRs.

10.9 **No records could be found that the PSSR process was audited to ensure Proper procedures were followed and all open items were completed.**

Management of Change MOCs

11.6 Need to establish time frame for emergency changes to issue MOCs.

An action plan should be developed in a timely manner to address the findings, which identify the key areas where the site should focus to enhance its process safety program. Please contact me if you have any questions or need further assistance with any of the findings and/or improvement options.

G. Baran

Rhodia

North American HSE SERVICES

To: B. McConnell Date: November 9, 2009

From: G Baran Subject: **Houston site 2009 PHMP-FSA Report**

The Rhodia Process Hazard Management Program (PHMP) Facilitated Self-Assessment (FSA) was conducted at the Houston site (note best practices were not audited) during September 22, 23, and 24, 2009 by Bala Balachandran, and George Baran. This report summarizes the assessment. This FSA constitutes the OSHA-PSM and EPA-RMP compliance audit for the site, and certification of the evaluation of compliance with the requirements of these regulations.

The 2009 FSA for the Houston site covered the entire plant and was broken down into 6 areas Regen including oleum, Treatment Services (TS), Logistics, Unit 8 including oleum, 65% Oleum and TXUP. The audit consisted of a review of the files (policy, documentation & procedures) including the last audit plus discussions with plant supervision (Bill McConnell, Mark Miget, Rob Stafford, Jim McCreight, Thaun Nguyen, Chester Farmer, Frances Romero, Jimmy Wooden, John Willis, Donna Schultz, Brett Jacks, Tim Collins, Wesley Carter, Kevin Copeland, Bryan Cecil, Ken Oliver, Keith Praytor, and James Shaw) on PHMP issues and a tour/inspection of the site with operator and maintenance interviews (Chris Stocks, Robert Brown, Paul Barrnet and Kyle McCafferty).

The Houston site needs to improve their process safety program and has only met minimum standards in 5 of the 17 applicable elements with an unacceptable rating for relief valve sizing and sizing basis in all units (no documentation available) except 65% oleum. The detailed FSA results can be found in the attached spreadsheet below.

2009_FSA
Houston.xls

Audit Results

The results are present in three categories (findings, recommendations, and improvement options) and identify the key areas where the site should focus to enhance its process safety program. An action plan should be developed in a timely manner to address the findings.

Findings: Those required too comply with OSHA-PSM and EPA-RMP regulations
Recommendations: Those required for complying with Rhodia PHMP requirements,
Improvement Options: Those not required, but offer opportunity for further improvement.

Findings (OSHA-PSM and EPA-RMP/CalARP requirements):

Safety File Management

- OSHA PSM and EPA RMP coverage determination documents need updating and awareness training is needed throughout the site on this determination

Process Safety Information – Chemicals

- The current maximum inventories for chemicals in the process unit were not available for Regen, TS, Logistics, and TXUP. This need to be available.

Process Safety Information – Technology

- Block flow diagrams were unavailable for TS. Diagrams need to be developed.
- A written description of the TXUP process chemistry was unavailable. This documentation needs to found or developed (see spread sheet for details)
- Critical operating parameters (COPs) for TS and Logistics were unavailable. COPs need to be determined and documented for these units.
- Material and energy balances for the TXUP unit need to be developed and placed in the unit safety files.
-

Process Safety Information - Equipment

- Need to determine and document electrical classification for the logistic barges and storage tanks.
- Need a written procedure for bypassing safety interlocks
- Equipment files need to be checked for completeness files were found missing in all units especially TXUP which could not be found. The TXUP files need a major overhaul.
- Relief valve sizing calculations and the sizing basis was not available in all area except 65% oleum. This is unacceptable and the documentation must be developed.

Process Hazard Analysis (PHAs)

- A management system needs to be put in place to timely address the findings from PHAs including sitings and human factors.

Standard Operating Procedures (SOPs)

- Emergency shutdown procedures must document personnel authorized to shutdown the unit. This is lacking in the Regen, Logistics, TS, and TXUP procedures.
- Definitions of COPs needs to be improved in the TS, Logistic, and TXUP procedures.
- Continue work on updating the unit SOPs throughout the plant into the format

Training

- Employees must be consulted on refresher training and this needs to be documented. No documentation exists for Unit 8, 65% Oleum and TXUP.

Contractors

- Procedures for contractor IH certifications and record keeping needs to be updated with personnel training on the procedures to ensure compliance. There is confusion in all areas of the plant involved in this process including the engineering platform and corporate purchasing.

Mechanical Integrity

- Unit equipment files were missing in all areas. The files need to be reviewed for completeness and updated accordingly.
- Improvements are needed in interlock and alarm testing. None of the units have DCS interlock or alarm testing records except TXUP
- Site needs a procedure on MOC work orders with training of all personnel.
- Continue work on developing an interlock matrix for each unit

Work Permits

- Training documentation of personnel on work permits needs improvement. The training conducted (permit specific), dates, names of personnel trained, the name of the instructor, and method to insure effective training all needs to be documented.

Management of Change (MOCs)

- Target date for completion needs to be added to the MOCs. – This is a corporate wide issue being addressed by process safety shared services.

Emergency Plans

- Emergency equipment needs to be inspected to ensure readiness when needed. No inspection records were available

Audits

- No action plan or documentation on address the finding from the 2003 FSA could be found.

Recommendations (Rhodia PHMP requirements):

Safety File Management Systems

- The safety file system needs to be updated with current information and locations of electronic files.

Process Safety Information – Technology

- Chemical material matrix was unavailable and needs to be found or developed for Regen, TS, Logistics, Unit 8 and 65% Oleum.

Process Safety Information - Equipment

- A list of all equipment with materials of construction was not available and needs to be developed for all units.
- Unit 8 and TXUP should maintain current P&IDs showing fail-safe positions for actuated valves (or a referenced valve specification sheet indicating fail-safe position)
- Safety integrity levels for safety instrumented systems in all areas should be documented

Process Hazard Analysis

- Risk sheets should be updated and revised as mitigation activities are completed
- Risk sheets need to be signed by the plant manager

Training

- A written training program for the site needs to be developed (see spreadsheet for details)

Mechanical Integrity

- Safety Integrity Levels should be determined for safety systems, and safety systems should be inspected at the appropriate frequencies

Improvement Options (opportunities for further improvement):

Safety File Management

- Files for the annual process safety plan needs to centralized and break out process safety being unit specific.
- Specific measurable goals for process safety stop at the superintendent. They include all the production engineers and supervisors.

Process Safety Information – Chemicals

- Written Haz-Com procedures need updating

Process Safety Information – Technology

- Unit safety files for all units need to point to manufacturing solutions for current incident investigations

Contractors

- Site contractor policy is out of date and needs updating
- Conduct additional contractor performance evaluations

Pre Start-up Unit Safety Review (PSUSR)

- Get rid of the old short form still in the Lotus Notes Platform database

Mechanical Integrity

- Mechanical Integrity written program needs updating
- Inactive equipment should be removed from the equipment list as it is removed from the unit and clearly identified as inactive if it is still in the unit process areas
- Work Order system should the name of the person performing the work on the work order
- The procedure of handing projects over from the platform to the operating units needs an overhaul.

Management of Change MOCs

- MOC procedure out of date needs updating
- MOC audit should not be part of the FSA as documented in the procedures. This is a separate plant audit.

Incident Investigations

- Procedures need to updated and reference manufacturing solutions
- Documentation on incidents reviews in safety meeting needs improvement. The safety meeting must document the Incidents reviewed by number not just say incidents were reviewed.

An action plan should be developed in a timely manner to address the findings, which identify the key areas where the site should focus to enhance its process safety program. Please contact me if you have any questions or need further assistance with any of the findings and/or improvement options.

G. Baran

ECO Services Project Action Form

SOLVAY

Created by William McConnell on 02/19/2010 at 03:48:33 PM

Recreate Project | Recreate Project with Assignees | Help | Print | Home

Status:	**Completed**
Completion Date:	04/12/2013
Priority:...	Medium

Action Tracking ID:	**PAT-ECO-HO-10-2**
Site:	HO
Responsible Department:	Office/Administration
Category:	Safety
Sub-Category:	Audit
Team Name:	Houston Management Team
Audit Name:	FSA Audit
Project Title:	Response to Houston 2009 FSA Audit

Task Summary Description: This project will be used to track responses to the 2009 FSA Audit. Assigned individuals are responsible for seeing the action items get the resources needed to get them done. Put responses including diagrams, calculations, etc. in this document. Also put the responses in the appropriate section of Lotus Notes, equipment files, or the Lan in the S-Drive/Process Safety/FSA section. This project action tracker only addresses findings. It is not meant to address recommendations. Target completion of all items if September 1, 2010.

Further Details:

Attachments

Title	Attachment	Author
Houston 2009 FSA Audit Report	Hou_2.doc	William McConnell on 02/19/2010

Project Manager:	William McConnell	Date Assigned:..	02/19/2010
Assigned By:	William McConnell	Action Due Date:	09/01/2010
cc List:	George Baran	Action Notification Date:	07/01/2010

Project Tasks: 43

Num	Task Description	Responsible	Due Date	Status	Link
1	Update OSHA PSM and EPA RMP coverage determination	William McConnell	05/28/2010	08/25/2010	Link
2	Calculate current maximum inventory levels for chemicals in	Jim Cesen	04/01/2010	12/29/2012	Link
3	Calculate current maximum inventory levels for chemicals in	Drew Foster	04/01/2010	08/25/2010	Link
4	Calculate current maximum inventory levels for chemicals in	Brett Jacks	04/01/2010	08/10/2010	Link
5	Calculate current maximum inventory levels for chemicals in	Jim Cesen	12/31/2012	12/03/2012	Link
6		Jim Cesen		08/25/2010	Link
7	A written description of the TXUP process chemistry needs to be	Drew Foster	06/01/2010	09/03/2012	Link
8	Critical operating parameters (COPs) for Treatment Services	Brett Jacks	06/01/2010	08/30/2010	Link
9	Critical operating parameters (COPs) for Logistics need to be	Jim Cesen	06/01/2010	11/30/2012	Link

10	Material and energy balances for the TXUP unit need to be	Brett Jacks	06/01/2010	09/03/2012	Link
11	Determine and document electrical classification for the logistic	Robert Stafford	06/01/2010	12/31/2012	Link
12	Need a written procedure for bypassing safety interlocks.	Jim Cesen	06/01/2010	12/20/2010	Link
13	Equipment files need to be checked for completeness. Make	Drew Foster	09/01/2010	11/30/2012	Link
14	Equipment files need to be checked for completeness. Make	Brett Jacks	09/01/2010	12/21/2012	Link
15	Equipment files need to be checked for completeness. Make	Jim Cesen	09/01/2010	12/07/2012	Link
16	Equipment files need to be checked for completeness. Make	Jim Cesen	09/01/2010	09/03/2012	Link
17	Equipment files need to be checked for completeness. Make	Jim Cesen	09/01/2010	09/03/2012	Link
18	Equipment files need to be checked for completeness. Make	Jim Cesen	09/01/2010	09/03/2012	Link
19	A management system needs to be put in place to timely address	Jim Cesen	09/01/2010	08/25/2010	Link
20	Emergency shutdown procedures must document personnel	Brett Jacks	06/01/2010	11/30/2012	Link
21	Emergency shutdown procedures must document personnel	Drew Foster	06/01/2010	11/06/2012	Link
22	Emergency shutdown procedures must document personnel	Jim Cesen	06/01/2010	12/21/2012	Link
23	Emergency shutdown procedures must document personnel	Drew Foster	06/01/2010	12/21/2012	Link
24	Definitions of COPs need to be improved. Treatment Services.	Brett Jacks	09/01/2010	08/30/2010	Link
25	Definitions of COPs need to be improved. Logistics	Jim Cesen	09/01/2010	12/21/2012	Link
26	Definitions of COPs need to be improved. TXUP.	Jim Cesen	09/01/2010	09/03/2012	Link
27	Update SOP's throughout the plant into current format. Regen and	Drew Foster	09/01/2010	12/21/2012	Link
28	Update SOP's throughout the plant into current format. Treatment	Brett Jacks	09/01/2010	12/21/2012	Link
29	Update SOP's throughout the plant into current format. Logistics.	Jim Cesen	09/01/2010	08/11/2011	Link
30		Jim Cesen	10/31/2010	09/03/2012	Link
31	Update SOP's throughout the plant into current format. 65% Oleum	Jim Cesen	09/01/2010	12/21/2012	Link
32	Update SOP's throughout the plant into current format. TXUP.	James Wooden	12/02/2012	12/17/2012	Link
33	Update SOP's throughout the plant into current format. No. 8 Unit	Keith Praytor	09/01/2010	12/21/2012	Link
34	Employees must be consulted on refresher training and it needs	Robert Stafford	06/01/2010	09/14/2010	Link
35	Procedures for contractor IH certifications and record keeping	Robert Stafford Jim Cesen	07/01/2010	08/31/2010	Link
36	Unit equipment files were missing in all areas. The files need to	Keith Praytor	09/01/2010	07/22/2010	Link
37	Improvements are needed in interlock and alarm testing.	James Shaw	06/01/2010	12/19/2011	Link
38	Site needs a procedure on MOC work orders with training of all	Jim Cesen	06/01/2010	08/31/2010	Link

39	Training documentation on personnel on work permits needs	James Shaw		05/01/2010	01/16/2013 Link
40	Target date for completion of MOC's need to be added to each	William McConnell		09/30/2010	08/25/2010 Link
41	Emergency equipment needs to be inspected to ensure readiness	Drew Foster		06/01/2010	10/15/2010 Link
42	No action plan or documentation on addressing the findings from			05/01/2010	08/25/2010 Link
43	Create block flow diagrams for Treatment Services.			06/01/2010	08/25/2010 Link

Task Progress and Attachments

Log Type	Task	Status	Log Entry	Attachment Title	Attachment	Author
Compl Log	Training documentation on personnel on work permits needs improvement. The training conducted (permit specific), dates, names of personnel trained, the name of the instructor, and method to insure effective training all needs to be documented.	Completed	[No Comments submitted]			James Shaw on 01/16/2013
Compl Log	Determine and document electrical classification for the logistic barges and storage tanks.	Completed	Per progress log entry: conservative classifications implemented. See 2013 Tracked M...[more]			Robert Stafford on 12/31/2012
Compl Log	Calculate current maximum inventory levels for chemicals in the process unit at Regen	Completed	Chad Smith completed on 12/28 - copy on the S drive and in the regen2 file cabinet			Jim Cesen on 12/29/2012
Compl Log	Definitions of COPs need to be improved. Logistics	Completed	done - see progress log attached below for matrix compiled by Adam Daniels			Brett Jacks on 12/21/2012
Compl Log	Emergency shutdown procedures must document personnel authorized to shutdown the unit. Treatment Services.	Completed	all TS procedures include this statement - "All T.S. Operators are responsible for un...[more]			Thuan Nguyen on 12/21/2012
Compl Log	Update SOP's throughout the plant into current format. Treatment Services.	Completed	complete - S:\TS\Procedures\Controlled Documents			Thuan Nguyen on 12/21/2012
Compl Log	Equipment files need to be checked for completeness. Make sure all necessary files are complete. Relief valve sizing calculations and the sizing basis need to be complete. Treatment Services.	Completed	supporting docs found at S:\Process Safety\Relief Calcs\TS			Thuan Nguyen on 12/21/2012
Compl Log	Update SOP's throughout the plant into current format. No. 8 Unit and oleum system.	Completed	complerted at S:\#8 unit\SOP's\Unit 8			Jim Cesen on 12/21/2012
Compl Log	Update SOP's throughout the plant into current format. 65% Oleum Unit.	Completed	complete at S:\#8 unit\SOP's\65 %			Jim Cesen on 12/21/2012
Progress Log	Calculate current maximum inventory levels for chemicals in the process unit at Regen		Chad working on it, model built, Albert assisting wiht burn-rite, about 50% complete...[more]			Jim Cesen on 12/21/2012
Compl Log	Emergency shutdown procedures must document personnel authorized to shutdown the unit. TXUP.	Completed	completed, in HO-UNIT8-SOP012-TXUP.			Jim Cesen on 12/21/2012
Compl Log	Update SOP's throughout the plant into current format. Regen and oleum system.	Completed	completed and uploaded to lotus notes (also on S:\#2REGEN\Procedure on new Format 200...[more]			Jim Cesen on 12/21/2012
Compl Log	Update SOP's throughout the plant into current format. TXUP.	Completed	Procedures have been updated and are on the S drive			Drew Foster on 12/17/2012
Compl Log	Equipment files need to be checked for completeness. Make sure all necessary files are complete. Relief valve sizing calculations and the sizing basis need to be complete. Logistics including oleum system.	Completed	All logistics PSV calculations are located on the S drive at the follow location: S:\...[more]			Adam Daniels on 12/07/2012
Compl Log	Calculate current maximum inventory levels for chemicals in the process unit at TXUP.	Completed	Performed Max Capacity Calculations for TXUP	TXUP Max Capacity	TXUP .xlsx	Drew Foster on 12/03/2012
Compl Log	Critical operating parameters (COPs) for Logistics need to be determined and documented for this area.	Completed	[No Comments submitted]	Logistics COP matrix 2012	Logis.xlsx	Adam Daniels on 11/30/2012
Progress Log	Critical operating parameters (COPs) for Logistics need to be determined and documented for this area.		Completed by Adam Daniels on 11/30/12	Logistics COP Matrix 2012	Logis.xlsx	Adam Daniels on 11/30/2012
	Emergency shutdown					

Overall Progress and Attachments

No Entries

Project Completion Statement

Status	Log Entry	Attachment Title	Attachment	Author	
Completed	Cleaning up the database, I noticed this project was complete			William McConnell on 04/12/2013	Add Response

Recreate Project

Recreate Project with Assignees

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PROCESS HAZARD MANAGEMENT PROGRAM
FACILITATED SELF ASSESSMENT

Introduction

The PHMP Facilitated Self Assessment measures the progress towards implementing a comprehensive process hazard management program.
The assessment evaluates current status against minimum standards established in PHMP and also process safety elements
The tool can be used to evaluate a single unit or process or the entire site. It incorporates PHMP, Responsible Care® elements, CCPS and other industry practices into a comprehensive process safety evaluation tool. It is meant to evaluate not only the "quantity", but also the quality of a site's program.
The tool can be used to facilitate continuous improvement of all process safety management elements.
The tool can also be used for technology assessment on a unit or process.
It also is used as a compliance assessment for 29 CFR 1910.119 (OSHA PSM Standard.) as required by section o, 29 CFR 1910.119(o).

The tool is meant to be used by site management to critically assess their process safety program. An outside facilitator assists in this evaluation to bring consistency between sites and units, but the site must participate in an open, self critical manner in order to achieve understanding and buy-in.

Methodology

The various sections within the facilitated self assessment correspond to the sections of PHMP.
The site's or unit's program elements are to be assessed versus the minimum standards and some best practices by using common auditing techniques including;
review and verification of procedures, records and supporting documentation, interviews with employees and observations of on-site conditions. Site participation during the assessment must include personnel knowledgeable in the process or unit being assessed.

Each section will receive a score or rating. Minimum standards will be assessed first. Each minimum standard that is met will be given a score of acceptable. All minimum standards within a section must be met to achieve an acceptable score of for that section. Certain minimum standards may be not applicable at a site and in such a case will not be counted. Periodically new minimum standards will be added to the assessment. During the first year after addition the new minimum standards will not be rated unless required by regulation. They will appear in the tool as New "Year" (ie New 2011). If a plant does meet the new standard it will initially be rated in-place.
See the table below for more details.

The individual sections are weighted in determining the overall plant or unit rating.
The weightings are based upon the relative importance of each section.

Output

The output of the assessment process will be a summary report of the various elements, the completed assessment tool, individual section scores and an overall composite rating. The report will list all items where minimum standards were not met.

The PHMP-FSA and subsequent report can be used to meet requirements for OSHA Process Safety compliance auditing

Scoring Key

Score	Key
Acceptable	Meets all requirements
Needs Improvement	Action plan in progress or minimum standard partially met or implemented
Unacceptable	Minimal or no progress toward minimum standards

North America Process Hazard Management Program (NA PHMP)

Facilitated Self-Assessment

Facility Name: Houston

Date: September 4, 2012

Auditors' Names: George Baran and Louis Higgins

TOTALS

Acceptable	95
Needs Improvement	31
Unacceptable	3
Not Applicable	1

Name:	Houston	Date:	9/4/2012								
Element:	Safety File Management System										
Requirement		**Status**		**Applicable Standards**		**Guidelines**		**Criteria for Implementation**		**Comments**	
1.1	Responsibility for Process Safety activities clearly defined, assigned and understood	1.1	Acceptable	1.1	PR 501 PR 502	1.1	Employees must be aware of activities covered under Process Safety Management coverage at the facility Responsibilities must be defined for areas covered under Process Safety Management	1.1	a. Auditors must assess PSM knowledge from interviews with employees b. PSM Training records must exist for each employee c. Documentation must show all PSM responsibility for all PSM covered areas and elements		
1.2	The skills required for various process safety management assignments/responsibilities are defined and training is conducted for assignees as required.	1.2	Acceptable	1.2	PR 500 PR 501 PR 502	1.2	Skills must be defined for all employees performing Process Safety Functions	1.2	Documentation must exists showing the requirements for all employees with process safety responsibilities		
1.3	OSHA PSM coverage determined for all units and documented	1.3	Acceptable	1.3	29 CFR 1910.119(a) PR 501 PR 502	1.3	Documentation must exist defining the coverage of all units at the facility	1.3	Documentation must show PSM coverage on all processes		
1.4	Unit safety file concept established and functioning	1.4	Needs Improvement	1.4	PR 501	1.4	Each unit must have a Unit Safety File	1.4	Unit Safety Files must exist for each unit		File links and documents need to be updated
1.5	An annual process safety plan is established, communicated to all employees and performance against plan is documented and communicated. Plan covers activities for upcoming year.	1.5	Acceptable	1.5	PR 501	1.5	The site must create a Process Safety Plan annually and communicate the plan to the employees. The facility's progress toward the plans goals must be documented and communicated to the employees. The plan must include various areas of Process Safety Management, specifically - Process Hazard Analyses - Audits - Training - Management of Change	1.5	Documentation must exist showing... a. The Process Safety Plan (including an action plan) b. Progress toward the plan c. Records documenting communication to plant employees		
1.6	Specific measurable goals for Process Safety Management performance are established and evaluated annually for appropriate management and staff personnel	1.6	Acceptable	1.6	PR 501 PR 502	1.6	The site must annually create Process Safety goals that include the following: - Written Process Safety Objectives for individuals or departments with measurable goals - Goals and Action Plans are tracked for completion / progress - Management review	1.6	Auditors will review completed the Process Safety Plan - Review Process Safety objectives for the technical manager or site "Process Safety Coordinator" for MOCs		
1.7	An electronic action tracking system is used including process safety issues, as needed	1.7	Needs Improvement	1.7		1.7	The site must used an electronic tracking mechanism for all Process Safety Related action items	1.7	Utilization of Manufacturing Solutions or a similar system		FSA, MOC, PHAs , PSUSR

Name:	Houston	Date:	9/4/2012								
Element:	Employee Participation										
Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments	
2.1	Written Employee Participation program is in place	2.1	Acceptable	2.1	29 CFR 1910.119(c)(1) PR 503	2.1	A written program must exist documenting how employees are included in the PHMP process - The written program must cover employee participation in all elements of the site's PHMP - The written program should describe how employees, including contract employees, are consulted in various areas of the program	2.1	The site must create a written program that addresses employee participation in all elements of the site's PHMP Supporting documentation must show employee participation in various areas of the program		
2.2	Employees (and contractors) have access to all program documentation	2.2	Acceptable	2.2	29 CFR 1910.119(c)(3) PR 503	2.2	Documentation must be readily assessible to all employees	2.2	Employees must demonstrate their ability to access PHMP related information		
2.3	Written program clearly defines HSE (including process safety) responsibilities for all employee	2.3	Acceptable	2.3		2.3	Document must exist defining each employee's HSE responsibilities	2.3	The site must create a document defining the HSE responsibility for each employee		

Name:	Houston	Date:	9/4/2012								
Element:	Process Safety Information - Chemicals										
Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments	
3.1	Facility maintains a current list of all chemicals, associated maximum inventories (including reaction products) and intended use.	3.1	Needs Improvement	3.1	PR 504 (3.1)	3.1	Maintain documentation of chemicals at the facility including, inventory amounts, locations, and intended use	3.1	The site should review the list on a regular basis and document the review The review should be included in the MOC process whenever there are changes in raw materials or finished goods	A complete list of TS chemicals and maximum inventories is needed	
3.2	Current MSDS for all chemicals are readily available on the site network.	3.2	Acceptable	3.2	29 CFR 1910.119(d)(1) PR 504 (3.2)	3.2	Maintain electronic copies of all MSDSs and ensure that they are readily available to all employees	3.2	Document a system for ensuring all MSDSs are added to the electronic "database" The system should include a process to ensure the most recent MSDS is available		
3.3	Material hazard information located on Material Technical Sheets and/or Reaction Sheets, or other documents, are available for all hazardous chemicals in cases where the hazard information located on the MSDS is inadequate, including the following in the case of MTSs. - A rationale for determining when Material Technical Sheets are needed, is available - Information is completed on Material Technical Sheets - References are indicated on the MTS	3.3	Acceptable	3.3	29 CFR 1910.119(d)(1) PR 504 (3.3)	3.3	Material Technical Sheets are maintained for all hazardous chemicals A procedure exists documenting how Material Technical Data Sheets are maintained	3.3	The site must have a system for maintaining Material Technical Sheets. A procedure/policy must exist which states the rationale for determining when a MTS is required. The Material Technical Sheets procedure includes the following: - Information is completed on Material Technical Sheets - References are indicated on the MTS		
3.4	Operators understand how to access MSDSs and the chemical hazards listed on the MSDS	3.4	Acceptable	3.4	PR 503	3.4	All employees must have a working knowledge of MSDS and chemical hazards, specifically the employees listed below - Operators - Technical staff - Maintenance	3.4	Documentation must exist showing training in hazard communication Employees must demonstrate the ability to locate and understand a MSDS		
3.5	Process hazards are documented and available	3.5	Acceptable	3.5	29 CFR 1910.119(d)(1) PR 504 (3.3)	3.5	Documentation includes the following: - Toxicity, reactivity, and corrosivity information - Permissible exposure limits - Hazardous effects of inadvertent mixing - Stability data	3.5	Process hazards should be documented and readily available to all employees - The information should include more than a MSDS, however if all of the required information can be found on a MSDS, a MSDS is acceptable for all products and raw materials in the process		
3.6	A system or process is established to identify new hazards in the process or reactive chemicals introduced to the site, changes to current inventory, identify HSE impacts and approve introduction.	3.6	Acceptable	3.6	29 CFR 1910.119(l)(1) PR 514	3.6	The system identifies new hazards: a. in the process or reactive chemicals being introduced to the site b. due to changes to current inventory AND identifies HSE impacts and requires approval prior introduction.	3.6	New hazards should be introduced using the MOC process and/or a PHA *- There should be no instances where a new hazard was not reviewed via the MOC process at a minimum*		
3.7	All process safety information is made available to employees	3.7	Acceptable	3.7	29 CFR 1910.119(c)(3) PR 503	3.7	All PSI should be readily available at within or near the process	3.7	Operators should demonstrate ability to easily obtain process safety information	Review with affected personnel	

Name:	Houston	Date:	9/4/2012						
Element:	Process Safety Information - Technology								
Requirement		**Status**		**Applicable Standards**		**Guidelines**		**Criteria for Implementation**	**Comments**
4.1	The facility must maintain Block Flow Diagrams for each process in the facility	4.1	Needs improvement	4.1	29 CFR 1910.119(d)(2)(i)(A) PR 505 (4.1)	4.1	Block flow diagrams (or Process Flow Diagrams) must exist for all processes indicating: - the unit operations in the process - the ways the operations are related to each other - the materials fed to, recycled, and discharged from the process	4.1	The facility must create and maintain block flow diagrams for all processes in the facility The block flow diagrams must be readily accessible	Oleum vaporizer block flow diagram could not be found
4.2	The facility must maintain documentation of all process chemistries at the facility - This documentation can be in the form of Reaction Sheets	4.2	Acceptable	4.2	29 CFR 1910.119(d)(2)(i)(B) PR 505 (4.2)	4.2	Written descriptions of the process chemistry(ies) must include the following: - Reactions and blends - Side reactions, wastes and by-products - Operating conditions - Hazards of the reaction (or blend) process - Heat of reaction (mixing)	4.2	The facility must document the process chemistry for each manufacturing process within its bounds The process chemistry information should be included with the process's other process safety information	
4.3	The facility must maintain documentation on all possible chemical interactions	4.3	Needs improvement	4.3	29 CFR 1910.119(d)(1)(ii) PR 505 (4.2 & 4.3)	4.3	A written matrix should exist documenting all possible interactions including... - Chemical / Chemical - Chemical / Material of Construction	4.3	The facility must create a matrix showing the reactivity of the material with other chemicals and materials	No chemical/material of construction matrix for TS
4.4	Critical operating parameters must be documented and made available to employees	4.4	Acceptable	4.4	PR 505 (4.4)	4.4	The documentation of Critical Operating Parameters should include the following: - Maximum normal operating limits - Operating adjustments to be implemented once maximum normal operating limits are exceeded - Never Exceed Limits - Immediate actions required when the Never Exceed Limit is reached - Safe Operating Limits - Description of the safety interlock system	4.4	Critical Operating Parameters must be identified and documented These COPs must be made readily available to all applicable employees The facility has a documented basis for Never Exceed Limit of the COPs such as: - Experimental data - Models and/or calculations - Physical properties	Continue work in progress to update COPs for logistics
4.5	The facility must document all incidents associated with each process	4.5	Acceptable	4.5	29 CFR 1910.119(m)(4) 29 CFR 1910.119(m)(7) PR 504 (4.8)	4.5	Document all incidents and make them readily available	4.5	The facility must utilize an electronic system to document each incident associated with each process	
4.6	The facility must maintain Material and Energy Balances for each process built after 1992 - For a small facility the Material and Energy Balance could be on a flow diagram	4.6	Acceptable	4.6	29 CFR 1910.119(d)(3)(ii)(G) PR 505 (4.6)	4.6	Create a Material and Energy Balance for each process built after 1992 - The Material and Energy Balance should be updated as changes occur in the process	4.6	Material and Energy Balances should be documented for each process built post 1992 - Material and Energy Balances should be reviewed and updated via the MOC process	
4.7	The facility has a process for identifying the necessary process safety information	4.7	Acceptable	4.7	PR 505 (4.7)	4.7	The site has a documented system for: - Determining what reactivity, stability, decomposition (or other essential process safety) data is necessary - Obtaining such data - Evaluating data for process safety issues - Incorporating such information into the new product introduction and/or PHA process	4.7	Written procedures must exist documenting how the required process safety information is defined for each process, including how the information will be obtained The system includes a management system to validate that all information obtained is sufficient	

Name:	Houston	Date:	9/4/2012								
Element:	Process Safety Information - Equipment										
Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments	
5.1	Site information is maintained documenting boundaries of the facility and each unit	5.1	Acceptable	5.1	PR 506 (5.1)	5.1	Documetation should exist with general site information including: - maps or photographs indicating surrounding businesses, communities, geography - boundaries for all units including warehouse storage, packaging, and transport areas - a facility layout - layouts for each unit	5.1	The facility will document all boundaries of the facility as well as each unit. The documentation will include information on other businesses nearby, the surrounding community, and the geography of the area Documentation will include information on the physcial boundaries of each process including layouts to support the written physical boundaries		
5.2	Documentation exists for all equipment	5.2	Needs Improvement	5.2	29 CFR 1910.119(d)(3) PR 506 (5.2)	5.2	Documentation should exist with all equipment information, including the materials of construction for all pieces of equipment within the process	5.2	The facility must create a list (or utilize a specification sheet for) of all equipment with Materials of construction in process or unit. Includeing the following: - valves - gaskets - packing The design specifications should be made available to maintenance as well as the operators within the process area *An electronic equipment database or file system with links to: design basis, specification sheets, process and hazard data, design standards, P&ID's, loop sheets, etc is preferred.*		Transfer of project files to equipment files - mising equipment from vapor combuster (seal pot, vapor combuster), files missing from sulfur tank - (vent changes to t-802)
5.3	P&IDs exist for all processes and are up-to-date and are made available to employees	5.3	Needs Improvement	5.3	29 CFR 1910.119(d)(3)(i)(8) PR 506 (5.3)	5.3	P&IDs are created for all aspects of each process - P&IDs are up-to-date - P&IDs are readily accessible - P&IDs have been reviewed in a PHA study	5.3	The facility must have up-to-date P&IDs for each process - The valves must show failsafe position - The P&IDs must be made readily available for each operator PHA study reports should document that each P&ID has been reviewed		TXUP P&IDs could not be found in lotus notes PI&ID for logistic caustic scrubber missing update on controls from project
5.4	Electrical classifications are identified for each area	5.4	Needs Improvement	5.4	29 CFR 1910.119(d)(3)(i)(C) PR 506 (5.4)	5.4	Drawings should exist documenting the electrical classifications of each process	5.4	The facility should create drawings showing the electrical classification of each area Electrical classifications shall be reviewed and the most recent drawing should be made available to employees		Could not find spent acid drawings, drawings need to be updated
5.5	Documentation of safety instrumented systems (interlocks) exist for each process within the facility	5.5	Acceptable	5.5	29 CFR 1910.119(d)(3)(i)(H) PR 506 (5.5)	5.5	Documentation should exist containing detailed descriptions of all safety systems - Interlock matrices should be created for each facility	5.5	The facility will document in detail all installed safety systems including: - hazards being addressed - hardware (and software) installed - design criteria used to select and size the equipment - safety interlocks and their purpose and procedure for any interlock bypass - applicable reference material		Make sure project information is transferred to interlock matrix to keep files up to date
5.6	Document that Recognized and Generally Accepted Good Engineering Practices are used in new projects and new processes	5.6	Acceptable	5.6	29 CFR 1910.119(d)(3)(ii) PR 506 (5.6)	5.6	Documentation should exist noting that Recognized and Generally Accepted Good Engineering Practices are used when installing new equipment, modifying a process area, or adding new processes There should also be determination and documentation that existing equipment designed and constructed in accordance with codes - Standards and practices no longer in general use is designed, operated, maintained inspected and tested in a safe manner.	5.6	The facility will document Recognized and Generally Accepted Good Engineering Practices via the MOC process - The facility shall maintain documentation that all existing equipment was designed and constructed according to code within the Unit Safety File		

Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments
5.7	Document the design standards and codes as well as the design basis for each aspect of the process	5.7	Acceptable	5.7	29 CFR 1910.119(d)(3)(ii) PR 506 (5.7)	5.7	Documentation must exist noting all of the codes, standards, and design bases used when designing a each system in the process	5.7	The facility must maintain and make available all equipment files including design standards and codes used and design basis for: - All equipment in the process - Safety systems (including pressure relief devices) - Electrical systems - Ventilation systems - Controls, alarms and interlocks - Pumps - Other process equipment - Structures - Piping systems	
5.8	All Pressure relief devices must be sized for use in each vessel	5.8	Needs Improvement		29 CFR 1910.119(d)(3)(i)(D) DRC 15-01 DRC 15-02 PR 554 (6.1) - MI Pressure Relief Devices	5.8	Documentation exists for each pressure relief device in the process area	5.8	The facility must size each pressure relief device for both fire and release scenarios The facility shall demonstrate that the pressure relief device in use is appropriate for the vessel to which it is attached.	Continue work on sizing relief valves, Check master relief valve for completeness
5.9	Safety Integrity Levels shall be indentified for each safety intstrumented system	5.9	[redacted]		DRC 11-36 (3.4.2) PR 554 (6.2) - MI Emergency Shutdowns and Interlocks	5.9	Each safety instrumented system must have documented Safety Integrity Levels and calculations to support all safety instrumented systems that are not SIL-0	5.9	The facility must document the Safety Integrity Level each safety instrumented system a. Each Safety Instrumented System and corresponding Safety Integrity Level shall be documented on the interlock matrix b. The calculations shall be done using the Rhodia approved method for any Safety Instrumented System not SIL-0	
5.10	Process control information is documented and made available to each employee	5.10	Needs Improvement		29 CFR 1910.119(c)(3) PR 506 (5.5)	5.10	Documentation must exist for each process control system - This documentation shall be made readily available to each employee	5.10	The facility shall ensure that written process control software descriptions are up-to-date and include: - Logic - Computer Code Used - Document describing what the code does	Description in lay mans terms for all SISs
5.11	Instrumentation details shall be documented and made available to all unit employees and maintenance	5.11	Needs Improvement		29 CFR 1910.119(c)(3) PR 506 (5.5)	5.11	Documentation must exist detailing instrumentation within the process - Each instrument must be included on the loop diagrams - Documentation shall be included in the equipment file	5.11	The facility shall make instrumentation details readily available to all area employees as well as maintenance including all of the following: - Loop and ladder drawings - Specification Data Sheets - Vendor information and manuals - Written functional descriptions	Description in lay mans terms for all interlocks

Name:	Houston	Date:	9/4/2012										
Element:	Process Hazard Analysis (PHA)												
Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments			
6.1	Create a schedule of all Process Hazard Analysis to be completed at the facility	6.1	Acceptable	6.1	29 CFR 1910.119(e)(1) PR 507 (6.1)	6.1	Document a schedule of completeting PHAs at the facility. This schedule should include a priority ranking of all of the units at the facility. - The documentation should include rationale on how the schedule was determined	6.1	Facility must create a PHA schedule that includes the following: a. Timeline of all PHAs to be completed, including the dates of the previous PHA and the future PHAs b. Priority ranking of all units at the facility c. Rationale of the priority ranking d. Complete coverage of the facility (including boilers, utilities, etc) e. PID list should exist that links PID to PHA coverage				
6.2	Complete PHAs as documented on the PHA schedule. - Revalidations must be completed within 5 years.	6.2	Acceptable	6.2	29 CFR 1910.119(e)(6) PR 507 (6.1)	6.2	Maintain documentation of the previous PHA schedules as well as the dates of all completed PHAs	6.2	The facility must document the start and end dates of completed PHAs - Facility must show that the PHAs were completed per the PHA schedule				
6.3	PHAs must be completed using one of the approved methodologies.	6.3	Acceptable	6.3	29 CFR 1910.119(e)(2) PR 507 (6.2)	6.3	Complete all PHAs using one of the methodologies listed below: - Preliminary Safety Analysis - What-If / Brainstorming (Checklists) - Haz-Op - Layers of Protection Analysis (LOPA) - Fault Tree	6.3	The facility must document that one of the approved methodologies was used during each PHA study.				
6.4	Complete, maintain, and review Risk Evaluation Sheets	6.4	Acceptable	6.4	DRC 32 PR 507 (6.1, 6.2, & 6.3)	6.4	Risk Evaluation Sheets with Residual Risk 1 must be closed and mitigation completed with in one year. Risk Sheets with Residual Risk 1 or 2 and severity "C" are signed by the Plant Manager and reviewed on an annual basis Residual Risk 1 Risk Sheets are reviewed by a Guarantor Risk Sheets are updated as new information becomes available (such as information generated from dispersional modeling)	6.4	The facility must maintain all Risk Sheets and document the following: - All Risk Sheets with Residual Risk 1 or 2 and severity "C" have been signed by the Plant Manager and reviewed on an annual basis - A guarantor has reviewed - All Risk 1 Risk Sheets have been completed and closed within one year - All risk sheets have been updated if new information becomes available				
6.5	All PHA teams must be led by an individual trained in the methodology used with members familiar with the process.	6.5	Acceptable	6.5	29 CFR 1910.119(e)(4) DRC 10 PR 507 (6.2)	6.5	All PHAs must consist of a leader trained in the Rhodia PHA methodologies PHA teams should include the following members at a minimum: - PHA Team Leader - Operations employee familiar with the process - Technical employee familiar with the process	6.5	Facility must document that all PHAs were led by individuals trained in the Rhodia PHA methodologies - The PHA study should state that the individual was trained in one of the approved methodologies - The PHA study should state that the positions/qualifications of all individuals on the PHA Study Team				
6.6	Maintain all final PHA study reports for the life of the process	6.6	Needs Improvement	6.6	29 CFR 1910.119(e)(7) PR 507 (6.1)	6.6	Maintain all documentation included with the PHA study report - Ensure the documents are available for a guarantor review	6.6	The following items must be available for review for each PHA studied - Final PHA study report (including a listing of all Process Safety Information reviewed during the study) - PHA recommendations and action items - All signed Risk Sheets - The facility must keep records of each PHA study for the life of the process	Could not find for PHAs Regen 2 Oleum before 2009			

Requirement	Status	Applicable Standards	Guidelines	Criteria for Implementation	Comments
6.7 Maintain a management system to ensure findings and Risk Sheets are closed and that recommendations are completed.	6.7 Needs Improvement	6.7 PR 507 (6.2 & 6.3)	6.7 Must maintain a system that documents all actions taken to ensure Risk Sheets and audit findings are closed and all PHA recommendations completed	6.7 The management system should include the following: - Documentation showing the actions taken for each finding, Risk Sheet, and PHA recommendation and that they are tracked to completion - A written schedule of when actions are to be completed - Individuals responsible for each item - Documentation of the status and completion of each item - Documentation showing that status of each item is communicated to affected employees (including maintenance and others as needed)	Not consistant some tracking of action items or recommendations from PHAs - 65 oleum,fresh acid handling, and TS needs follow-up. Unit 8 oleum and Regen 2 oleum could not be found. Sitings and Human factors items identified in the PHA need to be tracked
6.8 PHA study reports must include the following information: - PHA study completion date - The scope and objective(s) of the study - List of all Process Safety Information reviewed - List of all team members - Methodology used - Risk Sheets generated during the study - List of all action items and recommendations - List of PIDs reviewed with revision number	6.8 Acceptable	6.8 29 CFR 1910.119(e)(3) PR 507 (6.2 & 6.3)	6.8 The PHA study report should include all of the required information - The minimum Process Safety Information are: - MSDSs of raw materials and products - Hazards of inadvertent mixing - Piping and Instrumentation Diagrams (or Process Flow Diagrams for less complex systems) - MOC during the period being reviewed - Significant process safety incidents during the period being reviewed	6.8 The facility must ensure that all PHA study reports include the required information	
6.9 Major capital projects include a PHA review at the appropriate stages	6.9 Acceptable	6.9 29 CFR 1910.119(e)(3) PR 507 (6.1 & 6.4)	6.9 Major capital projects should be reviewed for process safety throughout the planning process PHA reviews can be one of the following methods: - LOPA - What-If/Checklist - HazOp/LOPA - Preliminary Safety Analysis - Risk Assessment - Pre-Startup Safety Review	6.9 The facility should insure that all capital projects include a PHA or safety review that is documented independently or included in RACE or MOC documentation	
6.10 Review the results of PHAs with affected employees	6.10 Needs Improvement	29 CFR 1910.119(e)(5) PR 507 (6.1)	6.10 The results of PHA studies must be reviewed with all employees working in the process	6.10 The facility shall maintain documentation showing that the results of PHA studies are communicated to employees through: - Sign-in sheets documenting the training - OR - - Meeting minutes listing the employees in attendance	
6.11 Report Process Safety Data in Bilan	6.11 Acceptable	PR 507 (6.1 & 6.2)	6.11 Report all required Process Safety data in Bilan, including... - Number of P&IDs - % of P&IDs included in a PHA studies - Number of Seveso/RMP P&IDs - % of Seveso/RMP P&IDs not included in PHA studies	6.11 Maintain documentation of total P&IDs and P&IDs covered in PHA studies Maintain documentation of all P&IDs covered by Seveso/ItMP	

Name:	Houston	Date:	9/4/2012								
Element:	Standard Operating Procedures										
Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments	
7.1	Each processing unit shall have standard operating procedures that include guidelines for the following phases: - Normal operation - Initial Startup - Shutdown - Emergency Shutdown - Startup after an emergency - Startup after a shutdown - Temporary operations - Cleaning/decontamination - Preparation for maintenance	7.1	Needs Improvement	7.1	29 CFR 1910.119(f)(1)(i) PR 508 (7.1)	7.1	Procedures must exist for each processing area and shall be available in the processing area	7.1	The facility shall maintain operating procedures that clearly identify the actions taken in each phase The facility shall maintain operating procedures in the area of operation - Procedures shall be easily accessible for each operator (either electronic or hardcopy)	Need to update to new format. Sections missing in different areas.	
7.2	Procedures shall be current annually certified	7.2	[redacted]	7.2	29 CFR 1910.119(f)(3) PR 508 (5.2)	7.2	Maintain a management system to ensure operating procedures are annually certified	7.2	The facility shall provide documentation of the annual certification Operations should verify that the procedures accurately reflect the process as it is currently done	SOPs Need to be certified	
7.3	All procedures shall include Critical Operating Parameters (COPs), consequences of deviation, steps to correct a deviation/troubleshoot problems, and a listing of safety systems	7.3	Needs Improvement	7.3	29 CFR 1910.119(f)(1)(ii) PR 508 (7.1)	7.3	Each procedure shall list the following: - Each COP along with its description - Each safety sytem along with its description - The consequences of deviating from the procedure - Steps on how to troubleshoot process deviations	7.3	The facility shall show documentation of each section in each standard operating procedure Operators should be able to identify the COPs in each process and have an understanding of the consequences of deviations and troubleshooting Operators should understand the safety systems in the area	Needs COPs for TS and Logistics documented.	
7.4	Operators are consulted when writing/changing procedures	7.4	Acceptable	7.4	PR 508 (7.1)	7.4	Each procedure modification shall include a review with operations personnel	7.4	Maintain documentation showing that operators are consulted when changes are being made - Examples could include MOCs initiated by operator or signed off sheet when an SOP is updated.		

Name:	Houston	Date:	9/4/2012						
Element:	Training								
Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation	Comments
8.1	Employees must received detailed training on the process and process hazards prior to entry into a new facility, department, or job classification	8.1	Acceptable	8.1	29 CFR 1910.119(g)(1)(i) PR 509	8.1	Each employee must receive training in the following areas: - Process overview including Process Flow, chemistry, potential hazards, and environmental impacts - Standard Operating Procedures with emphasis on safety and health hazards, emergency operations, and safe work practices applicable to the employee's job tasks - Critical Operating Parameter's - Operation of the equipment used in the process - - Process simulation of abnormal conditions on a control, DCS or computer system where the operator is required to regain control - Troubleshooting techniques	8.1	The facility shall maintain documentation of all employees training - Training matrix for each employee or position - Training documentation shall consist of a listinig of each topic covered in the training as well as the signature or an initial sign-off by the employee.	Supervisors should have a tracking grid for training
8.2	Each employee in a PSM covered facility must receive initial PSM training	8.2	Acceptable	8.2	29 CFR 1910.119(g)(1)(i) PR 509	8.2	Include a section on PSM in all new hire training programs	8.2	Document that PSM is included in all initial new hire orientation/training programs	
8.3	Each employee must receive refresher training at a minimum of every three years	8.3	Needs Improvement	8.3	29 CFR 1910.119(g)(2) PR 509	8.3	Each employee must receive refresher training in the following areas: - Process overview including Process Flow, chemistry, potential hazards, and environmental impacts - Standard Operating Procedures with emphasis on safety and health hazards, emergency operations, and safe work practices applicable to the employee's job tasks - Critical Operating Parameter's - Operation of the equipment used in the process - Process simulation of abnormal conditions on a control, DCS or computer system where the operator is required to regain control - Troubleshooting techniques	8.3	The facility shall document that all employees receive job specific refresher training at a minimum of every three years - The facility shall maintain a management system to ensure that all employees receive refresher training at a minimum of every three years. *(This should include agenda, sign in sheet, and documentation that employee understands the information.)*	Refresher training records to be verified for employees need to be verified for all units
8.4	Consult employees on the frequency and content of refresher training	8.4	Needs Improvement	8.4	29 CFR 1910.119(g)(2) PR 509	8.4	Employees must be consulted on determining the frequency and content of refresher training - The minimum frequency of refresher training must be three years - The training must contain a minimum of the following elements: - Process overview including Process Flow, chemistry, potential hazards, and environmental impacts - Standard Operating Procedures with emphasis on safety and health hazards, emergency operations, and safe work practices applicable to the employee's job tasks - Critical Operating Parameter's - Operation of the actual equipment used in the process ~~- Process simulation of abnormal conditions on a control, DCS or computer system where the operator is required to regain control~~ - Troubleshooting techniques	8.4	The facility shall maintain documentation that the employees have been consulted on the frequency and content of refresher training - Acceptable documentation may include, but are not limited to, the following: (a) Questions on refresher training assessments (b) Questions asked during departmental meetings (c) Surveys	Record needed on consulting employees on frequency of refresher
8.5	All training documentation must include the following: - The name of the employee trained - The training content - The date of the training - The means of ensuring that the individual understood the training - The name of the individual giving the training	8.5	Needs Improvement	8.5	29 CFR 1910.119(g)(2) PR 509	8.5	Include all of the information on the training documentation. - The means of ensuring that the individual understood the training should be measurable	8.5	The facility shall maintain all of the required information on training documents The means of ensuring that the operator understood the training shall be through one of the following methods - Training quiz - OR - - On the job trainng evaluation	Need documentattraining was understood and who conducted the training

Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments
8.6	The facility shall establish a training program for all employees, contractors, and visitors	8.6	Acceptable	8.6	PR 509	8.6	Establish a written procedure documenting how all employees, contractors, and visitors will be trained. - The procedure must include the criteria for qualifying and certifying employees	8.6	The facility shall maintain documentation showing that each employee, contractor, or visitor is trained as stated in the training procedure - The facility must document that each employee is "qualified" for the job based on the criteria for qualification and certification of employees	
8.7	The site shall have a management system for its training program	8.7	Acceptable	8.7	PR 509	8.7	The management system must include the following: - An individual assigned responsibility for the written training program - The responsibilities of personnel associated with the training program - A matrix of training for all positions - Trainer qualifications - A mechanism to audit the training program for effectiveness - Identified and implemented improvement opportunities	8.7	The facility's management system must contain all of the required information and must be made available	

Name:	Houston	Date:	9/4/2012								
Element:	Contractors										
Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments	
9.1	Maintain a written contractor safety program that includes the following: - A system to readily identify trainied contractors (i.e. hardhat stickers, etc.) - A list of approved contractors for use at the facility - A system in place to assess the contractor safety program (including the auditing of training records) - A system in place to audit and approve contractors - A system in place to qualify contractors performing preventative maintenance	9.1	Acceptable	9.1	29 CFR 1910.119(h)(2)(i) PR 510	9.1	Ensure that all employees responsible for contractor selection, evaluation, and audits are included in the contractor safety program.	9.1	Maintain documentation showing that each contractor has been selected based on the criteria set forth in the contractor safety program. - The documentation must show that the contractors meet all of the requirements of the contractor safety program - The documentation must show that the contractors have been audited offsite and evaluated onsite		
9.2	If applicable, the contract employer has the following as a portion of their safety program and that all employees working on-site are trained in each area, as required: - New Hire Safety Orientation Program/Plan - Written Incident Investigation Plan - Industrial Hygiene (including respirator fit testing, hearing protection, etc.) - Confined Space Entry - Hot Work - Lockout/Tagout	9.2	Acceptable	9.2	PR 510	9.2	Obtain documentation from the contracted company documenting the required training of all employees working on-site Ensure that the site has a management system for ensuring that each employee is current on all required training	9.2	The facility must obtain and maintain the safety plan and training records of approved contractors. The facility shall maintain documentation stating that the contracted company has a management system to track and ensure employee training The following documents are acceptable documents: - Written safety plan that includes the required information - Copies of annual safety training presentations along with their respective sign-in sheets - Signed certifications from respirator fit testing allowing respirators to be worn by each individual - Confined Space Entrant/Attendant certification cards		
9.3	Maintain a record, OSHA 300 log, of contractor injuries on-site	9.3	Acceptable	9.3	29 CFR 1910.119(h)(2)(vi) PR 510	9.3	Maintain records of all contractor injuries on an OSHA 300 log or similar document	9.3	The facility must maintain a record of all contractor injuries on-site		
9.4	The contractor approval process must include a system to review the company's safety record prior to bringing the contractor onsite	9.4	Acceptable	9.4	29 CFR 1910.119(h)(2)(i) PR 510	9.4	Prior to introducing a contactor to the site the following information must be obtained: - Total number of lost time injuries - Total number of fatalities - Total number of recordable injuries - Total number of days of restricted work - OSHA incident rate The facility must establish acceptable ranges for each item	9.4	The facility shall obtain the information required and document this information in the contractor's file When contractors are selected with records outside of the acceptable ranges there just be a documented justification		
9.5	Create and maintain a written Contractor Safety Plan that includes the following: - An orientation plan for new contractors working on-site - Training on the flammability, toxicity, and explosivity hazards of the facility with specific training on the hazards of the particular area(s) where the contractor will be located - Training on site rules and regulations - Training on Emergency Response Plan and the emergency actions - A means of assessing whether the employee understood the training	9.5	Acceptable	9.5	29 CFR 1910.119(h)(2) 29 CFR 1910.119(h)(3) PR 509 PR 510	9.5	A written Contractor Safety Plan must be maintained at the facility containing all of the required documents. The Contractor Safety Plan must be updated as changes occur at the facility.	9.5	The facility shall maintain a current Contractor Safety Plan. - The Contractor Safety Plan must clearly state the revision date The facility shall maintain documentation of all contractor's Contractor Safety Orientation via completed pre-job assessments or quizzes - The assessment shall include the name, date, subject matter, and results of the assessment		
9.6	The site shall conduct periodic evaluations of all contracted employees noting the conformance to site rules and regulations as well as job performance	9.6	Needs Improvement	9.6	29 CFR 1910.119(h)(2)(v) PR 510	9.6	A written worksite evaluation form must be created and completed for each contractor working on-site. The facility shall ensure that all contracted employees follow site safe work practices. - This can be documented via on-site audits of contractors which evaluate work safety as well as job performance and professionalism	9.6	The facility shall maintain records of contractor on-site audits documenting job performance and that the contractors follow site rules and regulations The facility shall also maintain records documenting any instance where a contractor was found not following the rules as well as the consequences of the violation(s) The facility shall maintain documentation of any instance where job performance was deemed poor and the consequences of the poor evaluation	Checked several contact firms envolved in last Regen turnaround and found only CCC was evaluated the other contractors were not evaluated	

Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments
9.7	Industrial hygeine data must be maintained on-site	9.7	Not Applicable	9.7	PR 510	9.7	In the event that a contractor performs industrial hygeine sampling at the facility, the results must be shared with the facility and maintained on-site with other industrial hygeine data	9.7	The Contractor Safety Plan must state that the results of industrial hygeine sampling taken on-site must be submitted to the facility within a set time-frame. There must be a location where this information is stored at the facility.	
9.8	The facility must document the contracted employer's responsibilities in the Contractor Safety Plan and maintain documentation of the adherence to these responsibilities	9.8	Acceptable	9.8	PR 510	9.8	The contracted employee's responsibilities shall include, at a minimum, the following: - Contract employees are trained in work practices necessary to safely perform the job - Contract employees are instructed of the known potential fire, explosion, or toxic release hazards and the applicable sections of the emergency action plan - Employees have received and understood the training required by this section (identity of employee, date of training, subject, and the means used to verify that the employee understood the training) - Contract employees follow the safety rules of the site - Contractor advises Rhodia of any unique hazards presented by the contractors work or any hazard found by the contractor's work.	9.8	The facility must obtain copies of the employees training prior to coming on site The facility must ensure that the training includes all of the required elements	

Name:	Houston	Date:	9/4/2012								
Element:	Pre-Startup Safety Review										
Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments	
10.1	The facility must have a Pre-Startup Safety Review procedure in place that includes the requirements of the review and when a Pre-Startup Safety Review is required	10.1	Acceptable	10.1	PR 511	10.1	The procedure shall state that a Pre-Startup Safety Review is completed whenever there is a change to the Process Safety Information	10.1	The facility must document the completion of the Pre-Startup Safety Review with the MOC The facility shall have all Pre-Startup Safety Review forms available for review, either hardcopy or electronic		
10.2	Maintain the Pre-Startup Safety Reviews for the life of the process	10.2	Acceptable	10.2	PR 511	10.2	The facility shall maintain all Pre-startup Safety Reviews for the life of the process in either hardcopy or electronic form	10.2			
10.3	Assign a responsible person/people for the oversight of the Pre-Startup Safety Review	10.3	Acceptable	10.3		10.3	The facility shall assign a responsible person/group for the oversight and maintenance of the program	10.3	The facility shall document the responsible individual(s) for the Pre-Startup Safety Review program *Note: There should be a procedure or form indicating who is responsible.*		
10.4	Establish a timeline of when a Pre-startup Safety Review is required for startup of idled processes/facilities or inactive products	10.4	Acceptable	10.4	PR 511	10.4	The facility must create a maximum timeframe for when inactive/idled materials or processes are to be brought back into service	10.4	The facility shall document the required timeframe in the written Pre-Startup Safety Review procedure *Note: This may be included in the site's MOC policy.*		
10.5	The facility must train employees on the use and requirements of Pre-Startup Safety Reviews	10.5	Needs Improvement	10.5	29 CFR 1910.119(i)(2)(iv) PR 511	10.5	All employees should have a working knowledge of the Pre-Startup Safety Review process	10.5	Pre-Startup Safety Review training shall be documented for each employee via sign-in sheets and/or training assessments or quizzes - These documents should be accompanied by the training documents or could be attached to MOCs		No records could be found
10.6	All Pre-Startup Safety Review forms shall include the following requirements: - Name of the area modified - Name of the project - Review of past Safety Reviews - Review of procedures required for safe start-up and operation and normal and emergency shutdown - Training requirements for all affected employees, along with documentation of the completed training - A walk through of area modified??? - Signatures noting the formal approval or authorization to start process - Construction and equipment are in accordance with design specifications - Safety, operating, maintenance and emergency procedures are in place and are adequate - For new facilities, or major capital projects, a PHA has been performed and recommendations have been resolved or implemented before start-up - Modified facilities meet the requirements of Management of Change	10.6	Acceptable	10.6	29 CFR 1910.119(i)(2) PR 511	10.6	The Pre-Startup Safety Review form shall include all of the required information - Each item shall be addressed in each Pre-Startup Safety Review - If an item is not completed the justification shall be noted on the form	10.6	The facility shall address and complete each requirement in each Pre-Startup Safety Review - These documents must be made available for review		
10.7	Employees shall be made aware of the Pre-startup Safety Review findings and aciton items	10.7	Needs Improvement	10.7	PR 511	10.7	All findings and action items must be communicated to employees	10.7	The facility shall maintain documentation showing that all applicable employees have been informed of all action items and findings - This shall be documented using a training sign-in sheet		No documentation
10.8	Actions from each Pre-Startup Safety Review are documented and tracked to completion	10.8	Needs Improvement	10.8	29 CFR 1910.119(l)(2)(iii) PR 511	10.8	A management system, such as Manufacturing Solutions, shall be used to track all findings and action items	10.8	The facility shall record all action items and findings in Manufacturing Solutions or a similar database		No tracking on B items, A items should be corrected before start-up no documentation
10.9	Periodically review the quality of all Pre-Startup Safety Reviews for completeness and accuracy	10.9				10.9	Review the Pre-Startup Safety Reviews on a defined periodic basis to ensure that all action items are closed and that there modifications are completed as stated on the forms	10.9	The facility shall maintain documentation of the review of the Pre-Startup Safety Reviews		

Requirement		Status		Applicable Standards	Guidelines		Criteria for Implementation		Comments
10.10	A Pre-Startup Safety Review must be done on all MOCs including ones that involve changes to Process Safety Information	10.10	Needs Improvement	29 CFR 1910.119(i)(1) PR 511	10.10	Perform a Pre-Startup Safety Review on all changes that affect PSI, including changes to Process Flow Diagrams, P&IDs, process chemistry, operating procedures, critical operating parameters, etc.	10.10	The facility shall maintain documentation of Pre-Startup Safety Reviews for all changes involving changes in Process Safety Information	Simple changes (personnel changes, procedure changes, etc.) included in MOC form questions. Expand PSSR to include all equipment changes

Name:	Houston	Date:	9/4/2012								
Element:	Management of Change (MOC)										
Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments	
11.1	Create and maintain a written Management of Change Procedure	11.1	Acceptable	11.1	29 CFR 1910.119(1)(1) PR 514	11.1	The facility shall create a written procedure explaining the Management of Change program and process	11.1	The facility shall make the written MOC procedure available		
11.2	The MOC procedure shall require completed MOCs for the following types of changes: **- Chemicals** **- Technology** **- Equipment** - Procedures - Siting, equipment relocation and layout **- Personnel** **- Process control philosophy (including critical operating parameters)** **- Process control equipment including DCS and PLC** - Process control configuration / application engineering - Organization - Policies, management systems - Critical operating parameters - New information on process hazards - Safety systems including alarm and interlocks setpoints - Others as defined by site-specific conditions **- Security** **- Products**	11.2	Acceptable	11.2	29 CFR 1910.119(l)(1) PR 514 (13.1)	11.2	The completed MOCs must be done on all changes that are not "Replacement in Kind" and that have any affect on the safe operation of any process, unit, procedure, etc.	11.2	The facility shall make the written MOC procedure available listing the required types of changes	Expand MOCs to include facility siting empacts (trailorw, etc.) and equipment brought into the site (thermal oxiders, open flame equipment, etc.)	
11.3	The written procedure must define the roles and responsibilities of key individuals involved in the Management of Change process - The procedure shall include the requirements for the review and authorization of changes	11.3	Acceptable	11.3	29 CFR 1910.119(l)(2)(v) PR 514 (13.1)	11.3	The written procedure shall state who is authorized to make, review, and approve changes at the facility	11.3	The facility shall make the MOC procedure available listing the roles and responsibilities of those involved in the MOC process		
11.4	All employees must be trained in the MOC process	11.4	Acceptable	11.4	PR 514 (13.1)	11.4	Training shall be conducted in each of the following situations: - Initial training for each new employee - Periodic training, at a defined frequency, noting changes to the program - Project training on all changes that occur in an area as a result of a project	11.4	The facility shall document MOC training using the training materials and sign-in sheets		
11.5	Each MOC shall include the following information: - A written description of and the technical basis of the change - Safety and health considerations, including criteria for performing formal risk assessment - Written approvals that authorize the change to be executed based on the analyzed safety and health considerations - Provision for satisfactory resolution of change review recommendations - Follow up to ensure that affected documentation is updated - Affected operations, maintenance, and contractor personnel are trained before they are "exposed" to the change - Regulatory Impacts of Change	11.5	Acceptable	11.5	29 CFR 1910.119(l)(2) PR 514 (13.1)	11.5	MOC forms shall include all of the required information	11.5	The facility shall include the required elements in the MOC procedure and shall address each element in each MOC In any case where an element is not complete there must be a supporting justification The facility shall make MOCs available for review in either hardcopy electronic form		
11.6	Establish a maximum timeframe for emergency changes to be implemented prior to approval	11.6	Needs Improvement	11.6	PR 514 (13.1)	11.6	In the event of an emergency change a MOC must be completed soon after the change. The facility must establish a timeframe when the MOC must be complete after the change	11.6	All emergency MOCs must be documented with the required information using Manufacturing Solutions or a similar database	Need to establish time frame for emergency changes to issue MOC	
11.7	Define a timeframe for each temporary change, prior to the initiation of the change	11.7	Needs Improvement	11.7	PR 514 (13.1)	11.7	The MOC must require predetermined start and end dates for each temporary MOC The start and end dates must be defined prior to the approval of the MOC	11.7	All temporary MOCs must be documented with the required information using Manufacturing Solutions or a similar database	Several temporary MOCs past due	

Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments
11.8	Define types of changes that cannot occur without prior approval, even in the event of a emergency	11.8	Acceptable	11.8	PR 514 (13.1)	11.8	The facility must define which changes cannot occur with out prior approval	11.8	The facility must document all emergency changes with the date of implementation and approval The facility must show zero instances where a prohibited emergency change was implemented prior to approval The MOCs should be documented in Manufacturing Solutions, or a similar database	
11.9	All MOCs must be documented using a database or a form and maintained for the life of the process	11.9	Acceptable	11.9	29 CFR 1910.119(l) PR 514 (13.1)	11.9	Document all MOCs in either electronic or hardcopy form and retain for the life of the process	11.9	The facility must maintain documentation nof all MOCs using Manufacturing Solutions or a similar database	
11.10	The facility must have an audit program to assess the MOC process relative to the written MOC procedure	11.10	Acceptable	11.10	PR 514 (13.1)	11.10	The audit program should consist of the following: - Reviews deficiencies in signatures and approvals - Completion of all required sections - Completion and documentation of follow-up activities - Effectiveness of system in reviewing all changes	11.10	The facility shall maintain documentation of the completed audit forms The facility shall make completed audit forms readily available for review	
11.11	The facility's written MOC procedure must include changes to security elements.	11.11	Acceptable	11.11	PR 514 (13.1)	11.11	The security elements included in the site's MOC procedure include the following: - Target assets including physical, chemical, information and cyber - Vulnerability status of the site - Physical and procedural countermeasures - Policies - Equipment - Personnel	11.11	The facility must document all security elements in the site Management of Change Program. The facility shall maintain documentation of MOCs for changes to security elements	

Name:	Houston	Date:	9/4/2012						
Element:	Mechanical Integrity								
Requirement		**Status**		**Applicable Standards**		**Guidelines**		**Criteria for Implementation**	**Comments**
12.1	The site must have a written Mechanical Integrity Plan that includes the required preventative/predictive maintenance (PM) for all of the following pieces of equipment: - Pressure vessels and storage tanks - Piping systems (including piping components such as valves and hoses) - Relief and vent systems and devices - Emergency shutdown systems - Controls (including monitoring devices and sensors, alarms, and interlocks) - Pumps and other rotating equipment - Other process equipment that may contain process materials or impact process safety	12.1	Acceptable	12.1	29 CFR 1910.119(j)(1) PR 512 (11.1)	12.1	The Mechanical Integrity Program must describe, in detail, the inspection and testing requirements and frequencies for all equipment categorized as A or B The plan must also address actions to be taken if a PM is late or missed The inspection frequencies must be defined in accordance with manufacturers recommendations, good engineering practices, codes, or more frequently if determined by prior operating experience	12.1 Documentation of the written MI Program for the facility that includes the PM schedule and all inspections/testing for all applicable equipment - The document must also address past-due inspections/tests The plan should be an active document that is updated as equipment is added/removed at the facility Manufacturer recommendations must be documented and maintained with all inspection records	
12.2	All equipment must be categorized as A, B, or C according to the guidelines set forth in MI PR-550 - Categorization of Equipment for Mechanical Integrity	12.2	Acceptable	12.2	PR 512 (11.1) MI PR 550 - Categorization of Equipment for Mechanical Integrity	12.2	Equipment must be categorized as A, B, or C based on regulatory or Rhodia requirements	12.2 The facility must document the categorization of all equipment in the MI Program - The categorization must include a justification for each item	
12.3	Each piece of equipment and its components must identified	12.3	Needs Improvement	12.3	MI PR 550 - Categorization of Equipment for Mechanical Integrity	12.3	Each piece of equipment, including the individual components, must identified using a unique number or code	12.3 The facility must document the unique number or codes in the MI Program for each piece of equipment and its components	Project information - instrumentation not in maintenace files for sulfur tank and VCU
12.4	Equipment specifications shall be maintained and updated as changes are made or new information is obtained	12.4	Needs Improvement	12.4	PR 512 (11.1)	12.4	Maintain all equipment specifications in the Unit Safety File for each piece of equipment - Component specification sheets shall be maintained in a defined location as defined by the facility The facility must create a system for updating specification sheets as needed	12.4 The facility must maintain a management system for all specification sheets and must make them readily accessible for all employees - The facility shall document changes to specification sheets and maintain the revision either in the Unit Safety File or in the facility's designated location for the specification sheets of components	System in place - some pieces of equipment missing specification sheets
12.5	The facility shall test Safety Instrumented functions according to the period used in the SIL calculations	12.5	Acceptable	12.5	MI PR 555 - Emergency Shutdowns & Interlocks MI PR 556 - Control Systems	12.5	Each SIS must have an accompanying SIL calculation - Each SIL calculation shall be done by an individual trained in performing SIL calculations	12.5 The facility must document all SISs on an Interlock Matrix - The SIL levels shall be documented on the Interlock Matrix and the supporting calculations shall be readily avaiable - The SIL calculations must include the underlying assumptions as well as the name of the individual performing SIL calculations, along with documentation of there certification(s)	No SIL calculations using default frequency identified in our procedures PR-555 and DRC 11-33 appendix 14. Interlock testing on VCU BMS behind schedule
12.6	All historical repairs and inspections shall be maintained onsite - For all equipment considered a layer of protection as listed in PHAs	12.6	Acceptable	12.6	PR 512 (11.1)	12.6	Create a central location for all historical repair and inspection records	12.6 Historical maintenance records should be readily available to all employees	
12.7	All inspections shall be documented using an inspection form and the form shall include the following: - Date of inspection - Name of inspector - Equipment identifier - Type of test - Test results	12.7	Acceptable	12.7	29 CFR 1910.119(j)(4)(iv) PR 512 (11.1) MI PR 551 - Storage Tanks and Pressure Vessls MI PR 552 - Piping Systems MI PR 553 - Rotating Equipment MI PR 554 - Pressure Relief Devices MI PR 555 - Emergency Shutdowns and Interlocks MI PR 556 - Control Systems	12.7	The facility must note all of the required information for each inspection or test	12.7 The facility should create inspection and testing forms for the different types of equipment and components and use these forms to document inspections and testing The facility shall maintain all completed documents in the Unit Safety File or in the designated area for component records	
12.8	Inspection personnel must be trained in the area of work	12.8	Acceptable	12.8	29 CFR 1910.119(j)(3) PR 512 (11.1)	12.8	Documentation must indicate that inspectors and repair personnel are trained in: - Overview of the process and its hazards - Procedures applicable to the employee's job tasks	12.8 The facility must maintain documentation of the inspector's qualifications along with the inspection forms	

Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments
12.9	All new equipment must be tested and added to the MI program prior to use	12.9	Needs Improvement	12.9	29 CFR 1910.119(j)(6) PR 512 (11.1)	12.9	All new equipment must be tested and the results reviewed prior to use The test results must be documented The MI must be updated to include the new equipment and the inspection frequencies must be determined according the the manufacturer's recommendations	12.9	The facility shall document that new pieces of equipment are tested prior to use and added to the MI Program The MI Program should have a management system in place to ensure that all new items are added to the program prior to use	Documentation of initial testing missing or inadequate on three projects - Redisigned VCU, New Sulfur Tank, and Barge Vent System
12.10	The facility must have a procedure for addressing system or equipment deficiencies and assigning responsibilities for those responsible for correcting these deficiencies The plan must include a statement prohibiting the deficient equipment/system from being used prior to the deficiency being corrected	12.10	Acceptable	12.10	29 CFR 1910.119(j)(5) PR 512 (11.1)	12.10	The procedure should include target dates for resolving system and equipment deficiencies. - The procedure should also require defective equipment be taken out of service	12.10	The facility must document the procedure for resolving system and equipment deficiencies, as well as defining responsibilities for those responsible The facility shall maintain documentation showing the date that the system/equipment was taken out of service, how the issue was resovled, and the date that it was brought back on-line	Failures on testing should be captured wether they are fixed immediately or not for historical records
12.11	All tools, parts, and other materials required for maintenance must be readily available and in good condition	12.11	Acceptable	12.11	29 CFR 1910.119(j)(6)(iii) PR 512 (11.1 & 11.3)	12.11	Create a system where all required tools, materials, and parts are continually replenished	12.11	The facility must create a system documenting the continual replacement of all necessary parts, materials, and tools	
12.12	All work orders should be linked to the MOC system to ensure that all work orders requiring a MOC have a MOC	12.12	Acceptable	12.12	PR 514	12.12	All work orders must be reviewed to ensure that all MOC requirements are met, if applicable	12.12	The facility shall maintain documentation showing the prioritization of word orders and the review of work orders for MOC applicability	Life of work order - training document showing operation supervisor is responsible ensuring MOC is issued before changes are made.
12.13	Test and inspect equipment according to the defined requirements and frequencies	12.13	Acceptable	12.13	29 CFR 1910.119(j)(6)(iii) PR 512 (11.1)	12.13	Ensure each piece of equipment, and its components, included in the MI Program is inspected and tested as stated in the MI Program	12.13	The facility must document and maintain all inspection and testing records in the Unit Safety File or in the designated area for components	
12.14	Assign responsibility over the MI program	12.14	Acceptable	12.14		12.14	The facility must assign a responsible person /people over the MI Program	12.14	The facility must document MI Program responsibility(ies)	
12.15	The facility must maintain records for idled or decommissioned equipment - Documentation must remain onsite for as long as the equipment is located at the facility	12.15	Acceptable	12.15	PR 512 (11.1) -> 29 CFR 1910.119(e)(7) -> 1910.119(d)(1)	12.15	All equipment records must be maintained for all idled or decommissioned equipment, including records documenting the idling/decommissioning	12.15	The facility shall document all reasons for idling/decommissioning equipment, and continue to maintain inspection records	
12.16	All applicable employees must have appropriate training, including training in the MI Program and the hazards of the process. In addition, refresher training must be done on a regular basis.	12.16	Acceptable	12.16	29 CFR 1910.119(j)(3) PR 512 (11.1)	12.16	All employees responsible for inspections, testing, or preventative/protective maintenance must be trained at a defined frequency and the training documented	12.16	The facility shall maintain records of the training documents and the means to assess the employee's understanding of the training The training shall include the following: - Name - Date - Subject matter - Results of assessment - Job qualification	
12.17	Electrical single line diagrams must exist for electrical systems (instrumentation/shutdown devices)	12.17	Acceptable	12.17	MI PR 556 - Control Systems	12.17	Maintain single line diagrams of all electrical equipment	12.17	The facility shall maintain current electrical single line diagrams The facility shall make all diagrams readily available	

Name:	Houston	Date:	9/4/2012								
Element:	Work Permits										
Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments	
13.1	Site has written procedures and/or permits conforming to regulatory and policy requirements for: - Hot Work - Lockout / Tagout - Confined Space Entry - Line or vessel entry - Elevated Work - Control over entrance into the facility - Crane operations near chemical and power lines - Excavation and Trenching - Work on energized ("live") electrical circuits	13.1	Acceptable	13.1	PR 513	13.1	Work permits must be developed with supporting procedures for all of the listed topics. Work permits must be maintained for a minimum of one year.	13.1	The facility must maintain and make available completed permits. - The facility shall have permits for, at a minimum, the past year The facility must provide current procedures for each listed topic. Permits currently in use must be completed per the corresponding procedure		
13.2	Each employee must be trained in the procedure(s) for each permit	13.2	Acceptable	13.2		13.2	Maintain documentation of all work permit training	13.2	The facility shall provide documentation that all employees have been trained in all of the listed work permits, if applicable - The facility shall document the training via copies of the training materials and completed sign-in sheets and/or completed assessments		Training conducted on an annual basis
13.3	Maintain a system for ensuring that manufacturing employees are notified when work is completed by maintenance or contractors	13.3	Acceptable	13.3		13.3	A procedure shall be developed explaining the procedure for notifying manufacturing of completed work done by maintenance or contract employees	13.3	The facilities shall demonstrate the use of the procedure during the implementation of permits		

Name:	Houston	Date:	9/4/2012						
Element:	Incident Investigation								
Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation	Comments
14.1	A management system for the incident investigation process has been established and includes the following elements: - Written procedure - Action item tracking database - Methods for communicating results of incident investigations to affected employees and contractors	14.1	Acceptable	14.1	29 CFR 1910.119(m)(5) 29 CFR 1910.119(m)(6) PR 515	14.1	The management system must include a written procedure that includes the following: - Definitions of "process incidents" and "near misses" - Personnel responsibilities - Reporting requirements - All incidents are investigated using a causal tree or similar method to document the events and the primary causes of the incident - Leadership requirements - Training requirements - Action tracking method - Means of communication to affected employees - Incident investigation report requirements - Incident severity ranking, based on impact to health, safety, and the environment The management system must also include a database for tracking actions and a system for communicating results	14.1	The facility shall maintain a current written procedure that includes all of the required elements The facility shall demonstrate the effectiveness of the management system in the following ways: (a) Evidence that action items are tracked to completion using Manufacturing Solutions or a similar database (b) Evidence that the results of incident investigations are communicated to affected employees and contractors through traning sign-in sheets	
14.2	All process incidents and significant near misses, with a severity or potential severity of medium and others at the discretion of the site, must be investigated, and the investigation initiated within 48 hours - Including near misses and reliability incidents	14.2	Acceptable	14.2	29 CFR 1910.119(m)(2) PR 515	14.2	A process incident is any event that results in or could possibly result in fires, explosions, hazardous chemical releases, damage to equipment, or injuries	14.2	The facility shall document all investigations in along with the incident using action tracking database (Manufacturing Solutions or similar) - The database shall show that the investigation was initiated within 48 hours of the event	
14.3	All incident investigations must include the following elements: - A team consisting of individuals involved in the incident and a trained team leader - Incident investigation report that includes: - Incident date - Date investigation began - Description of incident - Factors that contributed - Record of recommendations - List of all team members along with his/her respective qualifications - Incident severity rankings	14.3	Needs Improvement	14.3	29 CFR 1910.119(m)(4) PR 515	14.3	All incident investigations must be reviewed by a team with the following qualifications: (a) Team leader trained in the incident investigation procedure (b) Team member knowledgeable in the process (c) A contractor, if a contractor was involved in the incident All incident investations must be documented in a report that includes all of the required elements All incidents must be given a severity ranking based on the potential impact to health, safety, and the environment	14.3	The facility shall show that all incidents include all of the required elements by documenting all aspects of the investigation in the action tracking database (Manufacturing Solutions or similar)	Action items not tracked
14.4	Incidents must be discussed at safety or team meetings	14.4	Acceptable	14.4	ORC 05	14.4	Discuss all applicable incidents at safety or team meetings	14.4	The facility shall document when incidents are reviewed with applicable employees via sign-in sheets	
14.5	All incidents must be analyzed for trends on an annual basis	14.5	Acceptable	14.5		14.5	Incidents, including near misses and observations, must be analyzed for trends and action/improvement items created Key trends must be communicated to employees	14.5	The facility shall document trend analysis and action/improvement items The facility must document communication of trends to employees via sign-in sheets	
~~14.6~~	~~Site records, investigates, analyzes and tracks safety system trips or activations~~	~~14.6~~		14.6		~~14.6~~		~~14.6~~	~~The facility shall document all safety system trips or activations and shall make the information available upon request~~ ~~Note: This includes ELPs, deluge, etc.~~	

Name:	Houston	Date:	9/4/2012								
Element:	Emergency Planning and Response										
Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments	
15.1	The Emergency Response Plan must include the following: - Consideration of consequences of releases of hazardous material(s) and procedures for handling small releases - Employee training - Emergency drills, including frequency - Notification procedures for the initial response to emergencies, including checklists describing priorities, calling 911, sounding alarms, calling in employees on off hours, etc. - Procedures for communicating emergencies - Documentation of coordination between the facility and local agencies	15.1	Acceptable	15.1	29 CFR 1910.119(n) PR 516 (15.2)	15.1	The Emergency Response Plan must include all of the required elements The facility must document the consequences of different scenarios resulting in the release of hazardous, toxic, flammable, or reactive, materials - The procedure must also include the handling of small releases	15.1	The facility shall ensure that the Emergency Response Plan includes all of the required elements - Each element must be documented		
15.2	Establish a reponsible person for the Emergency Response Plan	15.2	Acceptable	15.2	29 CFR 1910.38(c)(6)	15.2		15.2	The facility shall establish a person responsible for the maintenance of the site Emergency Response Plan that includes the following: - Site emergency response management - Implementation of the plan - Improving and updating the plan		
15.3	Determination has been made whether the plant is also subject to the hazardous waste and emergency response provisions contained in 29 CFR 1910.120 (a), (p) and (q), Hazardous Waste Operations and Emergency Response. *Note*: If there is a conflict or overlap between the two provisions (1910.38 and 1910.120), then the one which is more protective of employee safety and health has been deemed to apply.	15.3	Acceptable	15.3	29 CFR 1910.119(n) PR 516 (15.1)	15.3	Review 29 CFR 1910.120 sections (a), (p), and (q) and determine applicability	15.3	The facility shall document the applicability determination, include justification for whether the facility is or is not covered under the standard - This determination shall be included in the Emergency Response Plan		
15.4	Employees must be trained in the details of the Emergency Response Plan	15.4	Acceptable	15.4	29 CFR 1910.38(e) PR 516 (15.2)	15.4	Maintain all emergency response training documentation for all employees - Training must include emergency recognition and prevention	15.4	The facility must maintain all Emergency Response Plan training documents/presentations, as well as training sign-in sheets or signed training checklists Training in emergency recognition and prevention should inlcude the kinds of emergencies that can occur at the facility, recognizing potential emergencies, and monitoring devices to detect emergencies	Verify follow-up records for employess missing initial training	
15.5	Emergencies must be communicated to Corporate HSE and GBU management	15.5	Acceptable	15.5	DRC 05 (5.2)	15.5	All emergencies must be communicated to GBU and Corporate HSE management	15.5	The facility must document communication of emergencies to GBU and Corporate HSE management via email or Manufacturing Solutions		
15.6	Emergency drills are conducted at minimum annual frequency	15.6	Acceptable	15.6		15.6		15.6	The facility shall document and make available all drill information		
15.7	Emergency response equipment is maintained and easily accessible in the event of an emergency	15.7	Acceptable	15.7	PR 516 (15.2)	15.7	Maintain all emergency equipment in good working condition All emergency equipment should be located in an area that is easily accessible in the event of an emergency	15.7	The facility shall maintain documentation of inspections and maintenance of emergency response equipment		

Name:	Houston	Date:	9/4/2012						
Element:	Compliance Audits								
Requirement		**Status**		**Applicable Standards**		**Guidelines**		**Criteria for Implementation**	**Comments**
16.1	Compliance audits to evaluate conformance to the requirements of the PHMP program are to be conducted at a minimum triennial frequency. Copies of the two most recent compliance audits are maintained onsite.	16.1	Acceptable	16.1	29 CFR 1910.119(o)(1) PR 518	16.1	An audit schedule is in place to evaluate compliance with the Process Hazard Management Program. - This schedule is at least every three years for OSHA covered units. Maintain the two most recent compliance audits.	16.1	The facility shall maintain the audit schedule for future audits including the date of the last audit. The facility will maintain the most recent TWO copies of the compliance audit results.	
16.2	Written compliance audit reports are written and communicated with plant management and appropriate personnel	16.2	Acceptable	16.2	29 CFR 1910.119(o)(3) PR 518	16.2	Document all compliance audits in a report form and review with management and all affected employees	16.2	The facility shall document that all compliance audit reports are reviewed with plant management and affected employees	
16.3	All action items and findings are discussed with plant management and all findings are documented and tracked to completion	16.3	Acceptable	16.3	29 CFR 1910.119(o)(4) PR 518	16.3	The site management must review each audit finding and document actions that will be taken to close each finding - These actions must be documented in a database such as Manufacturing Solutions and tracked to completion	16.3	The facility shall provide documentation showing that all action items are added to an action tracking database and that each item is tracked to completion	
16.4	Audits should include reviewing previous findings and "closed" action items/findings to ensure proper completion	16.4	Needs Improvement	16.4	29 CFR 1910.119(o)(5) PR 518	16.4	Review action items and findings from other audits, incident investigations, PHAs, MOCs, etc. to ensure that all findings are closed and that "closed" items are properly completed	16.4	The facility shall document the review of findings and "closed" action items in an audit report	All items not corrected from 2009 audit

Name:	Houston	Date:	9/4/2012								
Element:	Trade Secrets										
Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments	
17.1	Applicable information is made available to employees without regard to Trade Secrets when completing compiling Process Safety Information for review in Process Safety studies	17.1	Acceptable	17.1	29 CFR 1910.119(p) PR 519	17.1	Make all applicable information available for review during PHA studies, incident investigations, or any other review that could include trade secrets	17.1	None		No trade secrets have been kept from employees.

Name:	Houston	Date:	9/4/2012
Element:	Risk Management Plan		

Requirement	Status	Applicable Standards	Guidelines	Criteria for Implementation	Comments
18.1 Determine the applicability of RMP at the facility	18.1 Acceptable	18.1 40 CFR 68.10 PR 520	18.1 Determine whether any RMP chemicals are present at the facility above the threshold quantities	18.1 Documentation that all chemicals have been reviewed for RMP applicability - Documentation should be reviewed on a regular basis	Coverage for RMP is required for the following chemical stored on site: SO3, multiple grades of oleum and liquid hazardous wastes.
18.2 An individual has been assigned responsibility for the RMP program at the facility	18.2 Acceptable	18.2 40 CFR 68.15(b)	18.2 A person must be assigned responsibility for the RMP program that has an understanding of the regulation and its requirements	18.2 Documentation of RMP responsibilities	Organization chart for RMP responsibilities. George Baran designated as the authorized preparer of the RMP.
18.3 Program Level must be determined	18.3 Acceptable	18.3 40 CFR 68.11 PR 520	18.3 Determine Program Level using the guidelines available from the EPA (Level 1, 2, or 3)	18.3 Documentation must be maintained onsite with the determination of program levels and all supporting documentation	Level 3
18.4 All required RMP information must be submitted within the required timeframes	18.4 Acceptable	18.4 40 CFR 68.150 40 CFR 68.190 PR 520	18.4 The items listed below must be submitted and copies maintained onsite: - Submission of the initial notification of coverage under the RMP Standard - Submission/update of RMP coverage within (a) three years of a new chemical being listed by the EPA, (b) 6 months of a change requiring a new PHA, (c) 6 months of a change requiring a revised offsite consequence analysis where the distance increases or decreases by a factor of 2 (d) within 6 months of a change to the Program Level - Recertifications submitted within 5 years of the most recent submission - Emergency Response Plans submitted to LEPC and local Fire Department - Updates shall be submitted on time	18.4 The facility must maintain documentation that the required information has been submitted on time - All submitted documents must be available for review	Original submission - 8/8/2007 Updated - 6/1/2009 Plan to be updated by 12/8/12 to address oleum release that occurred on 6/9/12
18.5 Inform surrounding community of coverage under the Risk Management Plan standard	18.5 Acceptable	18.5 40 CFR 68.210 PR 520	18.5 Maintain documentation that RMP coverage was communicated to the surrounding community	18.5 The facility must hold a meeting with members of the community informing them of their RMP coverage, the risks associated with the covered material(s) and also the means used to ensure that a release will not take place - The meeting shall be documented with meeting minutes and a sign-in sheet	Has been accomplished through original industry public relations program and is discussed in the Houston Area Citizens Advisory Panel by plant management
18.6 File applicable RMP documentation with the *PUBLIC???*	18.6 Acceptable	18.6 40 CFR 68.210	18.6 Submit applicable RMP documentation to the FBI	18.6 The facility shall maintain documentation of the submittal to the FBI by maintaining copies of the information submitted and signed return receipts from the FBI	Original submission - 8/8/2007 Updated - 6/1/2009 Plan to be updated by 12/8/12 to address oleum release that occurred on 6/9/12
18.7 RMP covered facilities must coordinate their Emergency Response Plans with the Fire Department and the Local Emergency Planning Commission (LEPC)	18.7 Acceptable	18.7 40 CFR 68.12(b)(3) PR 520	18.7 Coordinate all emergency planning activities for the RMP covered material(s) with the LEPC and the Fire Department	18.7 The facility shall maintain documentation showing that emergency response activities are coordinated with the Fire Department and the LEPC - The facility shall establish a local contact to coordinate activities with the local Fire Department and LEPC	On a yearly basis, the Houston plant hosts fire department personnel that would respond to an event in the plant. A copy of the ERP has been given to the fire department's HAZMAT station. The other fire stations will wait for the HAZMAT station to arrive before proceeding with responding to emergencies for chemicals covered under RMP. The last fire department tour occurred during the month of 4/12. Safety Specialist attends LEPC meeting 6x per year.

Name:	Houston	Date:	9/4/2012								
Element:	General Requirements										
Requirement		Status		Applicable Standards		Guidelines		Criteria for Implementation		Comments	
19.1	*THERE ARE NO OTHER GENERAL REQUIREMENTS THAT APPLY TO THE FACILITATED SELF ASSESSMENT*	19.1		19.1		19.1		19.1			

Element	Total Questions	Acceptable	Needs Improvement	Unacceptable
Safety File Management System	7	5	2	0
Employee Participation	3	3	0	0
Process Safety Information - Chemicals	7	6	1	0
Process Safety Information - Technology	7	5	2	0
Process Safety Information - Equipment	11	4	6	1
Process Hazard Analysis (PHA)	11	8	3	0
Standard Operating Procedures	4	1	2	1
Training	7	4	3	0
Contractors	7	6	1	0
Pre-Startup Safety Review	10	5	4	1
Management of Change (MOC)	11	9	2	0
Mechanical Integrity	17	14	3	0
Work Permits	3	3	0	0
Incident Investigation	5	4	1	0
Emergency Response Plans	7	7	0	0
Compliance Audits	4	3	1	0
Trade Secrets	1	1	0	0
Risk Management Plan	7	7	0	0
Total	**129**	**95**	**31**	**3**

Section III – ATTACHMENTS

1. Process Description and corresponding Process Flow Diagrams
2. Current RMP Submittal
3. Facility Management System
4. Operating Procedures and Certifications
5. Operator Training Records
6. Compliance Audits
7. Exit Briefing Sign-In Sheet
8. Hot Work Permits
9. Process Chemistry (CBI) and Maximum Intended Inventory (CBI)

3:00 PM
4/24/13

* EXIT BRIEFING *

1) SHERYONDA PHELPS, US-EPA, REGION 6

FLOYD DICKERSON, RHODIA

GEORGE BRIGHAM, PROCESS SAFETY

William McConnell Plant Manager

Jim COSEY OPS MGR

Section III – ATTACHMENTS

1. **Process Description and corresponding Process Flow Diagrams**
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8. **Hot Work Permits**
9. **Process Chemistry (CBI) and Maximum Intended Inventory (CBI)**

Logistics

Rhodia

MC# 1153

LB# 25

BURNING – WELDING – HOT WORK PERMIT

NO BURNING, WELDING, OR OPEN FLAME WORK MAY BE PEROFRMED UNTIL THIS PERMIT HAS BEEN COMPLETED, CHECKED AND SIGNED

I.

DATE 3/27/12

UNIT/LOCATION Logistics Hot 976

TIME START 11:40 am

TIME FINISHED (est.) 7:00 pm

EQUIPMENT TO BE WORKED ON: suction pipe on TK 76

WORK TO BE DONE cut, grind, weld suction pipe

QUALIFIED TO SIGN

☑ CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)

☐ RHODIA REPRESENTATIVE

SIGNED

II.	YES	NO
1. SPRINKLER PROTECTION IN SERVICE?	☐	☑
2. HAVE ALL FLAMMABLE MATERIALS BEEN REMOVED FROM THIS AREA?	☑	☐
3. IS PURGING/FORCED VENTILATION NEEDED?	☐	☑
4. CONTINUOUS MONITORING REQUIRED?	☐	☑
5. HAS PROPER PPE BEEN DISCUSSED & ISSUED? (see PPE section on back)	☑	☐

III.	YES	NO
1. ALL WELDING / CUTTING EQUIPMENT IN GOOD CONDITION?	☑	☐
2. HAS A FLAMMABILITY GAS TEST BEEN PERFORMED?	☑	☐
3. HAVE ALL FLOOR / WALL OPENINGS & GRATINGS BEEN COVERED?	☐	☑
4. HAS FLOOR BEEN SWEPT OR WET DOWN IF NECESSARY?	☑	☐
5. AREABARRICADED?	☐	☑
6. IS A FIRE WATCH REQUIRED?	☑	☐
7. IS FIRE EXTINGUISHER ABAILABLE AND NEAREST WATER SOURCE LOCATED?	☑	☐
8. HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (see PPE section on back)	☑	☐

QUALIFIED TO SIGN

☑ MAINTENANCE SUPERVISOR OR DESIGNEE

SIGNED

IV. TIME	TIME	TIME	TIME	TIME	TIME
12:55 pm					
RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS
O_2: 20.9	O_2:	O_2:	O_2:	O_2:	O_2:
LEL: 0	LEL:	LEL:	LEL:	LEL:	LEL:
P.S.					
INITIALS	INITIALS	INITIALS	INITIALS	INITIALS	INITIALS

NOTE: atmosphere must be tested every 4 hours

Personal Protective Equipment Required **(joint responsibility of Operations & Maintenance)**

- [x] Welding Hood
- [ ] Welding Jacket
- [x] Welding Goggles/Face shield
- [ ] Welding Gloves
- [ ] Chemical Protective Suit
- [ ] Chemical Splash Hood
- [ ] Respiratory Protection (specify type)_____

V.	YES	NO
BEFORE USING PERMIT, READ ALL OF ABOVE INFORMATION		
1. HAVE ALL ASPECTS OF JOB BEEN CONSIDERED WITH SUPERVISOR?	☑	☐
2. HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (See PPE section above)	☑	☐

RETURN PERMIT TO THE CUSTODIAN UPON COMPLETION OF JOB FOR RETENTION

PERSONS AUTHORIZED TO PERFORM WORK

Chris Smallwood

FIREWATCH SIGNATURE

William Small

VI.

1. THE AREA IN WHICH WORK WAS PERFORMED IS INSPECTED BY THE CUSTODIAN, AND ACCEPTED BY THE CUSTODIAN PRIOR TO RELEASING MAINTENANCE FROM THE MASTER CARD.

CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)

BURNING – WELDING
HOT WORK PERMIT

A FIRE WATCH IS REQUIRED WHENEVER HOT WORK IS REQUIRED ON A BARGE, TREATMENT SERVICES AREA, OR WHEN FLAMMABLE MATERIALS HAVE NOT BEEN REMOVED 35 FT. FROM THE AREA.

Logistics

Rhodia #SS 48

MC# N/A

LB# N/A

BURNING – WELDING – HOT WORK PERMIT

NO BURNING, WELDING, OR OPEN FLAME WORK MAY BE PEROFRMED UNTIL THIS PERMIT HAS BEEN COMPLETED, CHECKED AND SIGNED

I.

DATE 3-14-12

UNIT/LOCATION HDT 932

TIME START 0745

TIME FINISHED (est.) 1700

EQUIPMENT TO BE WORKED ON: HDT 932

WORK TO BE DONE Replace gratings

QUALIFIED TO SIGN

☐ CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)

☐ RHODIA REPRESENTATIVE

SIGNED

II	YES	NO
1. SPRINKLER PROTECTION IN SERVICE?	☐	☑
2. HAVE ALL FLAMMABLE MATERIALS BEEN REMOVED FROM THIS AREA?	☑	☐
3. IS PURGING/FORCED VENTILATION NEEDED?	☐	☑
4. CONTINUOUS MONITORING REQUIRED?	☐	☑
5. HAS PROPER PPE BEEN DISCUSSED & ISSUED? (see PPE section on back)	☑	☐

III.	YES	NO
1. ALL WELDING / CUTTING EQUIPMENT IN GOOD CONDITION?	☑	☐
2. HAS A FLAMMABILITY GAS TEST BEEN PERFORMED?	☑	☐
3. HAVE ALL FLOOR / WALL OPENINGS & GRATINGS BEEN COVERED?	☑	☐
4. HAS FLOOR BEEN SWEPT OR WET DOWN IF NECESSARY?	☑	☐
5. AREABARRICADED?	☑	☐
6. IS A FIRE WATCH REQUIRED?	☑	☐
7. IS FIRE EXTINGUISHER ABAILABLE AND NEAREST WATER SOURCE LOCATED?	☑	☐
8. HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (see PPE section on back)	☑	☐

QUALIFIED TO SIGN

☑ MAINTENANCE SUPERVISOR OR DESIGNEE

SIGNED

IV.	TIME	TIME	TIME	TIME	TIME	TIME
	0800	12:32				
	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS
O_2:	20.5	20.9				
LEL:	0	0				
	TR	RS				
	INITIALS	INITIALS	INITIALS	INITIALS	INITIALS	INITIALS

NOTE: atmosphere must be tested every 4 hours

Personal Protective Equipment Required **(joint responsibility of Operations & Maintenance)**

☐ Welding Hood	☐ Welding Jacket	☑ Welding Goggles/Face shield
☑ Welding Gloves	☐ Chemical Protective Suit	☐ Chemical Splash Hood
☐ Respiratory Protection (specify type)_____		

V.	YES	NO
BEFORE USING PERMIT, READ ALL OF ABOVE INFORMATION		
1. HAVE ALL ASPECTS OF JOB BEEN CONSIDERED WITH SUPERVISOR?	☑	☐
2. HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (See PPE section above)	☑	☐

RETURN PERMIT TO THE CUSTODIAN UPON COMPLETION OF JOB FOR RETENTION

PERSONS AUTHORIZED TO PERFORM WORK

FIREWATCH SIGNATURE

R Solis

VI.

1. THE AREA IN WHICH WORK WAS PERFORMED IS INSPECTED BY THE CUSTODIAN, AND ACCEPTED BY THE CUSTODIAN PRIOR TO RELEASING MAINTENANCE FROM THE MASTER CARD.

CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)

BURNING – WELDING
HOT WORK PERMIT

A FIRE WATCH IS REQUIRED WHENEVER HOT WORK IS REQUIRED ON A BARGE, TREATMENT SERVICES AREA, OR WHEN FLAMMABLE MATERIALS HAVE NOT BEEN REMOVED 35 FT. FROM THE AREA.

Logistics

Rhodia

MC#_____

LB#_____

BURNING – WELDING – HOT WORK PERMIT

NO BURNING, WELDING, OR OPEN FLAME WORK MAY BE PEROFRMED UNTIL THIS PERMIT HAS BEEN COMPLETED, CHECKED AND SIGNED

SS 274

I.

DATE 4/23/13

UNIT/LOCATION Track 2

TIME START 830

TIME FINISHED (est.) UCW

EQUIPMENT TO BE WORKED ON: Steam Lp

WORK TO BE DONE Relocate

QUALIFIED TO SIGN

☑ CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)

☐ RHODIA REPRESENTATIVE

SIGNED

II.

	YES	NO
1. SPRINKLER PROTECTION IN SERVICE?	☐	☑
2. HAVE ALL FLAMMABLE MATERIALS BEEN REMOVED FROM THIS AREA?	☑	☐
3. IS PURGING/FORCED VENTILATION NEEDED?	☐	☑
4. CONTINUOUS MONITORING REQUIRED?	☐	☑
5. HAS PROPER PPE BEEN DISCUSSED & ISSUED? (see PPE section on back)	☑	☐

III.

	YES	NO
1. ALL WELDING / CUTTING EQUIPMENT IN GOOD CONDITION?	☑	☐
2. HAS A FLAMMABILITY GAS TEST BEEN PERFORMED?	☑	☐
3. HAVE ALL FLOOR / WALL OPENINGS & GRATINGS BEEN COVERED?	☐ N/A	☐
4. HAS FLOOR BEEN SWEPT OR WET DOWN IF NECESSARY?	☑	☐
5. AREABARRICADED?	☐	☑
6. IS A FIRE WATCH REQUIRED?	☑	☐
7. IS FIRE EXTINGUISHER ABAILABLE AND NEAREST WATER SOURCE LOCATED?	☑	☐
8. HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (see PPE section on back)	☑	☐

QUALIFIED TO SIGN

☐ MAINTENANCE SUPERVISOR OR DESIGNEE

SIGNED

IV.

TIME	TIME	TIME	TIME	TIME	TIME
830					
RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS
O_2: 20%	O_2:	O_2:	O_2:	O_2:	O_2:
LEL: 0	LEL:	LEL:	LEL:	LEL:	LEL:
INITIALS	INITIALS	INITIALS	INITIALS	INITIALS	INITIALS

NOTE: atmosphere must be tested every 4 hours

Personal Protective Equipment Required **(joint responsibility of Operations & Maintenance)**

- [x] Welding Hood
- [ ] Welding Jacket
- [x] ~~Welding Goggles~~ Face shield
- [x] Welding Gloves
- [ ] Chemical Protective Suit
- [ ] Chemical Splash Hood
- [ ] Respiratory Protection (specify type)_____

V.	YES	NO
BEFORE USING PERMIT, READ ALL OF ABOVE INFORMATION		
1. HAVE ALL ASPECTS OF JOB BEEN CONSIDERED WITH SUPERVISOR?	[x]	[ ]
2. HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (See PPE section above)	[x]	[ ]

RETURN PERMIT TO THE CUSTODIAN UPON COMPLETION OF JOB FOR RETENTION

PERSONS AUTHORIZED TO PERFORM WORK

Rocky Johnson

Bill Burton

FIREWATCH SIGNATURE

VI.

1. THE AREA IN WHICH WORK WAS PERFORMED IS INSPECTED BY THE CUSTODIAN, AND ACCEPTED BY THE CUSTODIAN PRIOR TO RELEASING MAINTENANCE FROM THE MASTER CARD.

CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)

BURNING – WELDING
HOT WORK PERMIT

A FIRE WATCH IS REQUIRED WHENEVER HOT WORK IS REQUIRED ON A BARGE, TREATMENT SERVICES AREA, OR WHEN FLAMMABLE MATERIALS HAVE NOT BEEN REMOVED 35 FT. FROM THE AREA.

SS 49

unit 8

Rhodia

MC# 3495

LB# 1

BURNING – WELDING – HOT WORK PERMIT

NO BURNING, WELDING, OR OPEN FLAME WORK MAY BE PEROFRMED UNTIL THIS PERMIT HAS BEEN COMPLETED, CHECKED AND SIGNED

I

DATE 2-7-13

UNIT/LOCATION #8

TIME START 7am

TIME FINISHED (est.) 7pm

EQUIPMENT TO BE WORKED ON: Brinks

WORK TO BE DONE Repair Brinks steel

QUALIFIED TO SIGN

☑ CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)

☐ RHODIA REPRESENTATIVE

Jay Baker

SIGNED

II

	YES	NO
1. SPRINKLER PROTECTION IN SERVICE?	☐	☑
2. HAVE ALL FLAMMABLE MATERIALS BEEN REMOVED FROM THIS AREA?	☑	☐
3. IS PURGING/FORCED VENTILATION NEEDED?	☐	☑
4. CONTINUOUS MONITORING REQUIRED?	☐	☑
5. HAS PROPER PPE BEEN DISCUSSED & ISSUED? (see PPE section on back)	☑	☐

III

	YES	NO
1. ALL WELDING / CUTTING EQUIPMENT IN GOOD CONDITION?	☑	☐
2. HAS A FLAMMABILITY GAS TEST BEEN PERFORMED?	☑	☐
3. HAVE ALL FLOOR / WALL OPENINGS & GRATINGS BEEN COVERED?	☐	☑
4. HAS FLOOR BEEN SWEPT OR WET DOWN IF NECESSARY?	☑	☐
5. AREABARRICADED?	☑	☐
6. IS A FIRE WATCH REQUIRED?	☑	☐
7. IS FIRE EXTINGUISHER ABAILABLE AND NEAREST WATER SOURCE LOCATED?	☑	☐
8. HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (see PPE section on back)	☑	☐

QUALIFIED TO SIGN

☑ MAINTENANCE SUPERVISOR OR DESIGNEE

Scott Rudd

SIGNED

IV

TIME	TIME	TIME	TIME	TIME	TIME
11:15	12:35				
RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS
O_2: 20.9	O_2: 20.9	O_2:	O_2:	O_2:	O_2:
LEL: 0	LEL: 0	LEL:	LEL:	LEL:	LEL:
INITIALS CP	INITIALS BS	INITIALS	INITIALS	INITIALS	INITIALS

NOTE: atmosphere must be tested every 4 hours

Personal Protective Equipment Required **(joint responsibility of Operations & Maintenance)**

☑ Welding Hood	☐ Welding Jacket	☑ Welding Goggles/Face shield
☑ Welding Gloves	☐ Chemical Protective Suit	☐ Chemical Splash Hood
☐ Respiratory Protection (specify type)_____		

v	YES	NO
BEFORE USING PERMIT, READ ALL OF ABOVE INFORMATION		
1. HAVE ALL ASPECTS OF JOB BEEN CONSIDERED WITH SUPERVISOR?	☑	☐
2. HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (See PPE section above)	☑	☐
RETURN PERMIT TO THE CUSTODIAN UPON COMPLETION OF JOB FOR RETENTION		

PERSONS AUTHORIZED TO PERFORM WORK

Pat Stagner
Rick Landry Sr.

FIREWATCH SIGNATURE

R Solis

VL

1. THE AREA IN WHICH WORK WAS PERFORMED IS INSPECTED BY THE CUSTODIAN, AND ACCEPTED BY THE CUSTODIAN PRIOR TO RELEASING MAINTENANCE FROM THE MASTER CARD.

CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)

BURNING – WELDING
HOT WORK PERMIT

A FIRE WATCH IS REQUIRED WHENEVER HOT WORK IS REQUIRED ON A BARGE, TREATMENT SERVICES AREA, OR WHEN FLAMMABLE MATERIALS HAVE NOT BEEN REMOVED 35 FT. FROM THE AREA.

unit 8

#SS 33

Rhodia

MC# 3996
LB# 9

BURNING – WELDING – HOT WORK PERMIT

NO BURNING, WELDING, OR OPEN FLAME WORK MAY BE PEROFRMED UNTIL THIS PERMIT HAS BEEN COMPLETED, CHECKED AND SIGNED

I

DATE 2-7-13
UNIT/LOCATION #8
TIME START 7am
TIME FINISHED (est.) 7pm
EQUIPMENT TO BE WORKED ON: Condensate
WORK TO BE DONE Weld repair ... North of ...

QUALIFIED TO SIGN
☑ CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)
☐ RHODIA REPRESENTATIVE

II

		YES	NO
1.	SPRINKLER PROTECTION IN SERVICE?	☐	☑
2	HAVE ALL FLAMMABLE MATERIALS BEEN REMOVED FROM THIS AREA?	☑	☐
3.	IS PURGING/FORCED VENTILATION NEEDED?	☐	☑
4.	CONTINUOUS MONITORING REQUIRED?	☐	☑
5.	HAS PROPER PPE BEEN DISCUSSED & ISSUED? (see PPE section on back)	☑	☐

SIGNED [signature]

III

		YES	NO
1.	ALL WELDING / CUTTING EQUIPMENT IN GOOD CONDITION?	☑	☐
2.	HAS A FLAMMABILITY GAS TEST BEEN PERFORMED?	☑	☐
3	HAVE ALL FLOOR / WALL OPENINGS & GRATINGS BEEN COVERED?	☐	☑
4.	HAS FLOOR BEEN SWEPT OR WET DOWN IF NECESSARY?	☑	☐
5.	AREABARRICADED?	☑	☐
6	IS A FIRE WATCH REQUIRED?	☑	☐
7	IS FIRE EXTINGUISHER ABAILABLE AND NEAREST WATER SOURCE LOCATED?	☑	☐
8.	HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (see PPE section on back)	☑	☐

QUALIFIED TO SIGN
☑ MAINTENANCE SUPERVISOR OR DESIGNEE

SIGNED Scott Redd[illegible]

IV

TIME	TIME	TIME	TIME	TIME	TIME
7:25	10:10				
RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS
O_2: 20.9	O_2: 20.9	O_2:	O_2:	O_2:	O_2:
LEL: 0	LEL: 0	LEL:	LEL:	LEL:	LEL:
SR	SR				
INITIALS	INITIALS	INITIALS	INITIALS	INITIALS	INITIALS

NOTE: atmosphere must be tested every 4 hours

Personal Protective Equipment Required **(joint responsibility of Operations & Maintenance)**

- [x] Welding Hood
- [ ] Welding Jacket
- [x] Welding Goggles/Face shield
- [x] Welding Gloves
- [ ] Chemical Protective Suit
- [ ] Chemical Splash Hood
- [ ] Respiratory Protection (specify type) _____

V	YES	NO
BEFORE USING PERMIT, READ ALL OF ABOVE INFORMATION		
1. HAVE ALL ASPECTS OF JOB BEEN CONSIDERED WITH SUPERVISOR?	[x]	[ ]
2. HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (See PPE section above)	[x]	[ ]

RETURN PERMIT TO THE CUSTODIAN UPON COMPLETION OF JOB FOR RETENTION

PERSONS AUTHORIZED TO PERFORM WORK

Pat Staner
Ricky Landry Sr.

FIREWATCH SIGNATURE

R Soli

VI

1. THE AREA IN WHICH WORK WAS PERFORMED IS INSPECTED BY THE CUSTODIAN, AND ACCEPTED BY THE CUSTODIAN PRIOR TO RELEASING MAINTENANCE FROM THE MASTER CARD

CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)

BURNING – WELDING
HOT WORK PERMIT

A FIRE WATCH IS REQUIRED WHENEVER HOT WORK IS REQUIRED ON A BARGE, TREATMENT SERVICES AREA, OR WHEN FLAMMABLE MATERIALS HAVE NOT BEEN REMOVED 35 FT. FROM THE AREA.

SS#49

Rhodia

MC# N/A
LB#

BURNING – WELDING – HOT WORK PERMIT

NO BURNING, WELDING, OR OPEN FLAME WORK MAY BE PEROFRMED UNTIL THIS PERMIT HAS BEEN COMPLETED, CHECKED AND SIGNED

I

DATE 4/12/13

UNIT/LOCATION [redacted] / Fans 13 & 14

TIME START 9:10

TIME FINISHED (est.) 5:00

EQUIPMENT TO BE WORKED ON: fan screens

WORK TO BE DONE Weld repair

QUALIFIED TO SIGN

- ☐ CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)
- ☐ RHODIA REPRESENTATIVE

SIGNED

II

		YES	NO
1.	SPRINKLER PROTECTION IN SERVICE?	☐	☑
2.	HAVE ALL FLAMMABLE MATERIALS BEEN REMOVED FROM THIS AREA?	☑	☐
3.	IS PURGING/FORCED VENTILATION NEEDED?	☐	☑
4.	CONTINUOUS MONITORING REQUIRED?	☐	☑
5.	HAS PROPER PPE BEEN DISCUSSED & ISSUED?	☑	☐

(see PPE section on back)

III

		YES	NO
1.	ALL WELDING / CUTTING EQUIPMENT IN GOOD CONDITION?	☑	☐
2.	HAS A FLAMMABILITY GAS TEST BEEN PERFORMED?	☑	☐
3.	HAVE ALL FLOOR / WALL OPENINGS & GRATINGS BEEN COVERED?	☑	☐
4.	HAS FLOOR BEEN SWEPT OR WET DOWN IF NECESSARY?	☑	☐
5.	AREABARRICADED?	☑	☐
6.	IS A FIRE WATCH REQUIRED?	☑	☐
7.	IS FIRE EXTINGUISHER ABAILABLE AND NEAREST WATER SOURCE LOCATED?	☑	☐
8.	HAS PROPER PPE BEEN DISCUSSED AND ISSUED?	☑	☐

(see PPE section on back)

QUALIFIED TO SIGN

- ☑ MAINTENANCE SUPERVISOR OR DESIGNEE

SIGNED

IV

TIME	TIME	TIME	TIME	TIME	TIME
9:15a					
RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS
O_2: 20.7	O_2:	O_2:	O_2:	O_2:	O_2:
LEL:	LEL:	LEL:	LEL:	LEL:	LEL:
DCR					
INITIALS	INITIALS	INITIALS	INITIALS	INITIALS	INITIALS

NOTE: atmosphere must be tested every 4 hours

Personal Protective Equipment Required **(joint responsibility of Operations & Maintenance)**

☑ Welding Hood	☐ Welding Jacket	☐ Welding Goggles/Face shield
☑ Welding Gloves	☐ Chemical Protective Suit	☐ Chemical Splash Hood
☐ Respiratory Protection (specify type)		

v	YES	NO
BEFORE USING PERMIT, READ ALL OF ABOVE INFORMATION		
1. HAVE ALL ASPECTS OF JOB BEEN CONSIDERED WITH SUPERVISOR?	☑	☐
2 HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (See PPE section above)	☑	☐
RETURN PERMIT TO THE CUSTODIAN UPON COMPLETION OF JOB FOR RETENTION		

PERSONS AUTHORIZED TO PERFORM WORK

FIREWATCH SIGNATURE

VI

1. THE AREA IN WHICH WORK WAS PERFORMED IS INSPECTED BY THE CUSTODIAN, AND ACCEPTED BY THE CUSTODIAN PRIOR TO RELEASING MAINTENANCE FROM THE MASTER CARD.

CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)

BURNING – WELDING
HOT WORK PERMIT

A FIRE WATCH IS REQUIRED WHENEVER HOT WORK IS REQUIRED ON A BARGE, TREATMENT SERVICES AREA, OR WHEN FLAMMABLE MATERIALS HAVE NOT BEEN REMOVED 35 FT. FROM THE AREA.

Reg II

Rhodia

MC# 44

LB# 44

BURNING – WELDING – HOT WORK PERMIT

NO BURNING, WELDING, OR OPEN FLAME WORK MAY BE PEROFRMED UNTIL THIS PERMIT HAS BEEN COMPLETED, CHECKED AND SIGNED

I.

DATE 3-23-13

UNIT/LOCATION Regen, Boiler

TIME START 8:30 am

TIME FINISHED (est.)

EQUIPMENT TO BE WORKED ON: Boiler

WORK TO BE DONE Patches on Hog dose

QUALIFIED TO SIGN

☑ CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)

☐ RHODIA REPRESENTATIVE

SIGNED

II.	YES	NO
1. SPRINKLER PROTECTION IN SERVICE?	☐	☑
2. HAVE ALL FLAMMABLE MATERIALS BEEN REMOVED FROM THIS AREA?	☑	☐
3. IS PURGING/FORCED VENTILATION NEEDED?	☐	☑
4. CONTINUOUS MONITORING REQUIRED?	☐	☑
5. HAS PROPER PPE BEEN DISCUSSED & ISSUED? (see PPE section on back)	☑	☐

III.	YES	NO
1. ALL WELDING / CUTTING EQUIPMENT IN GOOD CONDITION?	☑	☐
2. HAS A FLAMMABILITY GAS TEST BEEN PERFORMED?	☑	☐
3. HAVE ALL FLOOR / WALL OPENINGS & GRATINGS BEEN COVERED?	☑	☐
4. HAS FLOOR BEEN SWEPT OR WET DOWN IF NECESSARY?	☑	☐
5. AREABARRICADED?	☑	☐
6. IS A FIRE WATCH REQUIRED?	☑	☐
7. IS FIRE EXTINGUISHER ABAILABLE AND NEAREST WATER SOURCE LOCATED?	☑	☐
8. HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (see PPE section on back)	☑	☐

QUALIFIED TO SIGN

☑ MAINTENANCE SUPERVISOR OR DESIGNEE

Jesse M

SIGNED

IV.	TIME	TIME	TIME	TIME	TIME	TIME
	8:30 am	12:45 pm				
RESULTS						
O_2:	20.9	20.8				
LEL:	0	0				
INITIALS	MP	MP				

NOTE: atmosphere must be tested every 4 hours

Personal Protective Equipment Required **(joint responsibility of Operations & Maintenance)**

- [x] Welding Hood
- [ ] Welding Jacket
- [x] Welding Goggles/Face shield
- [x] Welding Gloves
- [ ] Chemical Protective Suit
- [ ] Chemical Splash Hood
- [ ] Respiratory Protection (specify type)_____

V.

	YES	NO
BEFORE USING PERMIT, READ ALL OF ABOVE INFORMATION		
1. HAVE ALL ASPECTS OF JOB BEEN CONSIDERED WITH SUPERVISOR?	☑	☐
2. HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (See PPE section above)	☑	☐

RETURN PERMIT TO THE CUSTODIAN UPON COMPLETION OF JOB FOR RETENTION

PERSONS AUTHORIZED TO PERFORM WORK

M. M Flores

Bill Lnarick

FIREWATCH SIGNATURE

VI.

1. THE AREA IN WHICH WORK WAS PERFORMED IS INSPECTED BY THE CUSTODIAN, AND ACCEPTED BY THE CUSTODIAN PRIOR TO RELEASING MAINTENANCE FROM THE MASTER CARD.

Jesse M

CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)

BURNING – WELDING
HOT WORK PERMIT

A FIRE WATCH IS REQUIRED WHENEVER HOT WORK IS REQUIRED ON A BARGE, TREATMENT SERVICES AREA, OR WHEN FLAMMABLE MATERIALS HAVE NOT BEEN REMOVED 35 FT. FROM THE AREA.

Reg II

Rhodia

MC# N/A

LB# N/A

BURNING – WELDING – HOT WORK PERMIT

NO BURNING, WELDING, OR OPEN FLAME WORK MAY BE PEROFRMED UNTIL THIS PERMIT HAS BEEN COMPLETED, CHECKED AND SIGNED

I.

DATE 4.2.13

UNIT/LOCATION Regen II

TIME START 700

TIME FINISHED (est.) now

EQUIPMENT TO BE WORKED ON: 93 PT

WORK TO BE DONE patch hole on shell of 93 PT

QUALIFIED TO SIGN

☑ CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)

☐ RHODIA REPRESENTATIVE

II.

	YES	NO
1. SPRINKLER PROTECTION IN SERVICE?	☐	☑
2. HAVE ALL FLAMMABLE MATERIALS BEEN REMOVED FROM THIS AREA?	☑	☐
3. IS PURGING/FORCED VENTILATION NEEDED?	☐	☑
4. CONTINUOUS MONITORING REQUIRED?	☐	☑
5. HAS PROPER PPE BEEN DISCUSSED & ISSUED? (see PPE section on back)	☑	☐

SIGNED

III.

	YES	NO
1. ALL WELDING / CUTTING EQUIPMENT IN GOOD CONDITION?	☑	☐
2. HAS A FLAMMABILITY GAS TEST BEEN PERFORMED?	☑	☐
3. HAVE ALL FLOOR / WALL OPENINGS & GRATINGS BEEN COVERED?	☐	☑
4. HAS FLOOR BEEN SWEPT OR WET DOWN IF NECESSARY?	☐	☑
5. AREABARRICADED?	☑	☐
6. IS A FIRE WATCH REQUIRED?	☑	☐
7. IS FIRE EXTINGUISHER ABAILABLE AND NEAREST WATER SOURCE LOCATED?	☑	☐
8. HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (see PPE section on back)	☑	☐

QUALIFIED TO SIGN

☑ MAINTENANCE SUPERVISOR OR DESIGNEE

Jesse M

SIGNED

IV.

TIME	TIME	TIME	TIME	TIME	TIME
800	1:06				
RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS
O_2: 20.9	O_2: 21.1	O_2:	O_2:	O_2:	O_2:
LEL: 0	LEL: 0	LEL:	LEL:	LEL:	LEL:
JM					
INITIALS	INITIALS	INITIALS	INITIALS	INITIALS	INITIALS

NOTE: atmosphere must be tested every 4 hours

Personal Protective Equipment Required **(joint responsibility of Operations & Maintenance)**

- [x] Welding Hood
- [ ] Welding Jacket
- [x] Welding Goggles/Face shield
- [ ] Welding Gloves
- [ ] Chemical Protective Suit
- [ ] Chemical Splash Hood
- [ ] Respiratory Protection (specify type)_____

V.

	YES	NO
BEFORE USING PERMIT, READ ALL OF ABOVE INFORMATION		
1. HAVE ALL ASPECTS OF JOB BEEN CONSIDERED WITH SUPERVISOR?	☑	☐
2. HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (See PPE section above)	☑	☐

RETURN PERMIT TO THE CUSTODIAN UPON COMPLETION OF JOB FOR RETENTION

PERSONS AUTHORIZED TO PERFORM WORK

Ricky Landry Sr.

FIREWATCH SIGNATURE

Wilson Griffith

VI.

1. THE AREA IN WHICH WORK WAS PERFORMED IS INSPECTED BY THE CUSTODIAN, AND ACCEPTED BY THE CUSTODIAN PRIOR TO RELEASING MAINTENANCE FROM THE MASTER CARD.

CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)

BURNING – WELDING
HOT WORK PERMIT

A FIRE WATCH IS REQUIRED WHENEVER HOT WORK IS REQUIRED ON A BARGE, TREATMENT SERVICES AREA, OR WHEN FLAMMABLE MATERIALS HAVE NOT BEEN REMOVED 35 FT. FROM THE AREA.

Reg II

Rhodia

MC# N/A

LB# 1

BURNING – WELDING – HOT WORK PERMIT

NO BURNING, WELDING, OR OPEN FLAME WORK MAY BE PEROFRMED UNTIL THIS PERMIT HAS BEEN COMPLETED, CHECKED AND SIGNED

I.

DATE 4/18/2013

UNIT/LOCATION R-2 Scrubber

TIME START 0700

TIME FINISHED (est.) 1900

EQUIPMENT TO BE WORKED ON: FOUNDATION Work

WORK TO BE DONE Weld Rebar

QUALIFIED TO SIGN

- [x] CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)
- [ ] RHODIA REPRESENTATIVE

SIGNED

II.

	YES	NO
1. SPRINKLER PROTECTION IN SERVICE?	☐	☒
2. HAVE ALL FLAMMABLE MATERIALS BEEN REMOVED FROM THIS AREA?	☒	☐
3. IS PURGING/FORCED VENTILATION NEEDED?	☐	☒
4. CONTINUOUS MONITORING REQUIRED?	☐	☒
5. HAS PROPER PPE BEEN DISCUSSED & ISSUED? (see PPE section on back)	☒	☐

III.

	YES	NO
1. ALL WELDING / CUTTING EQUIPMENT IN GOOD CONDITION?	☒	☐
2. HAS A FLAMMABILITY GAS TEST BEEN PERFORMED?	☒	☐
3. HAVE ALL FLOOR / WALL OPENINGS & GRATINGS BEEN COVERED?	☒	☐
4. HAS FLOOR BEEN SWEPT OR WET DOWN IF NECESSARY?	☒	☐
5. AREABARRICADED?	☒	☐
6. IS A FIRE WATCH REQUIRED?	☒	☐
7. IS FIRE EXTINGUISHER ABAILABLE AND NEAREST WATER SOURCE LOCATED?	☒	☐
8. HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (see PPE section on back)	☒	☐

QUALIFIED TO SIGN

- [ ] MAINTENANCE SUPERVISOR OR DESIGNEE

Gus Vasquez
SIGNED
Fire watch (LUIS AMADOR

IV.

TIME	TIME	TIME	TIME	TIME	TIME
0800					
RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS
O_2: 20.9	O_2:	O_2:	O_2:	O_2:	O_2:
LEL: 0	LEL:	LEL:	LEL:	LEL:	LEL:
CH					
INITIALS	INITIALS	INITIALS	INITIALS	INITIALS	INITIALS

NOTE: atmosphere must be tested every 4 hours

Personal Protective Equipment Required **(joint responsibility of Operations & Maintenance)**

- ☑ Welding Hood
- ☑ Welding Gloves
- ☐ Respiratory Protection (specify type)_____
- ☐ Welding Jacket
- ☐ Chemical Protective Suit
- ☐ Welding Goggles/Face shield
- ☐ Chemical Splash Hood

V.

	YES	NO
BEFORE USING PERMIT, READ ALL OF ABOVE INFORMATION		
1. HAVE ALL ASPECTS OF JOB BEEN CONSIDERED WITH SUPERVISOR?	☑	☐
2. HAS PROPER PPE BEEN DISCUSSED AND ISSUED? (See PPE section above)	☑	☐

RETURN PERMIT TO THE CUSTODIAN UPON COMPLETION OF JOB FOR RETENTION

PERSONS AUTHORIZED TO PERFORM WORK

Julio Tinoco

Luis Amador

Cesar Tinoco

FIREWATCH SIGNATURE

VI.

1. THE AREA IN WHICH WORK WAS PERFORMED IS INSPECTED BY THE CUSTODIAN, AND ACCEPTED BY THE CUSTODIAN PRIOR TO RELEASING MAINTENANCE FROM THE MASTER CARD.

CUSTODIAN (OPERATIONS SUPERVISOR OR DESIGNEE)

BURNING – WELDING
HOT WORK PERMIT

A FIRE WATCH IS REQUIRED WHENEVER HOT WORK IS REQUIRED ON A BARGE, TREATMENT SERVICES AREA, OR WHEN FLAMMABLE MATERIALS HAVE NOT BEEN REMOVED 35 FT. FROM THE AREA.